Environmental Justice in the Narragansett Bay Region

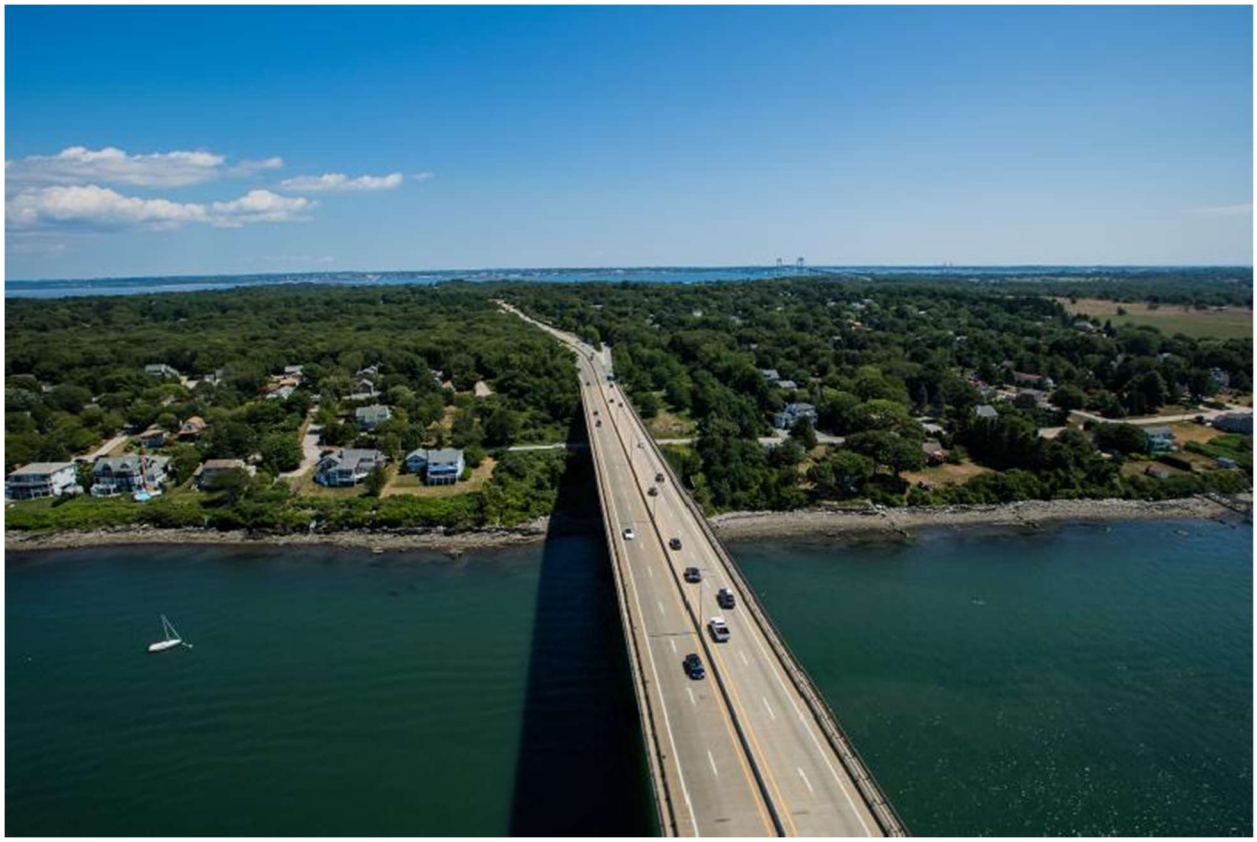
Indelible patterns in our landscape and waters reveal the inequitable benefits and burdens on our communities—legacies of our shared history

Introduction

> *"But if you recognize that your liberation and mine are bound up together, we can walk together."* —Lilla Watson

Environmental justice is the just and equitable distribution of environmental benefits and burdens for all communities, resulting in higher quality of life for all.

Environmental justice means that all of us receive protections from environmental and public health hazards. It means we all have access to amenities like clean water, green space, public access, and shade. And it affords us all meaningful opportunities to participate in environmental decision-making. Advancing environmental justice increases success *for all communities*, including people of all races, national origins, incomes, and life experiences.

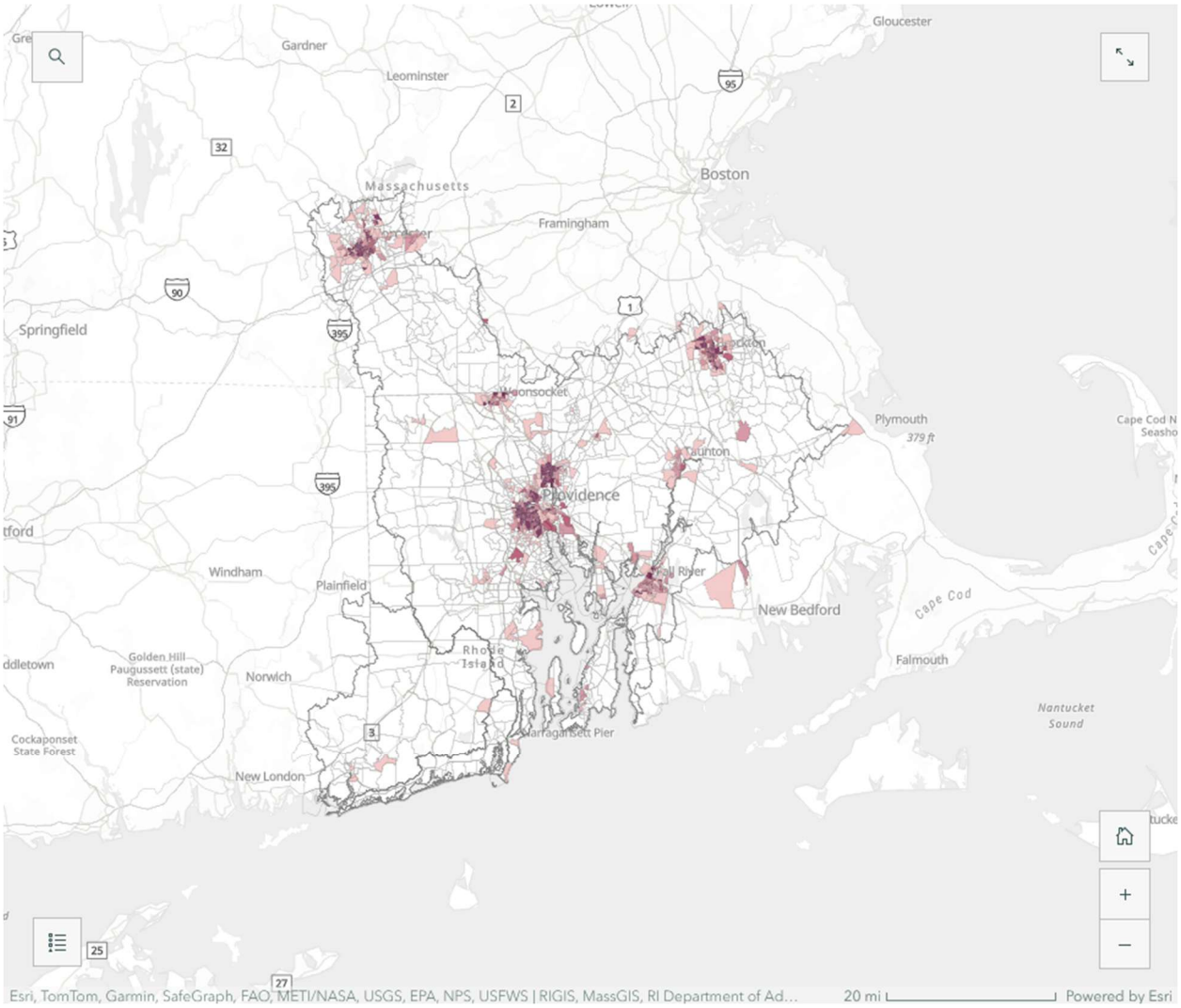


What are the distributions of environmental benefits and burdens in our region? Let's take a look at the data.

Come explore with us. Follow our journey as we investigate a variety of environmental benefits and burdens to better understand what environmental justice means to our region.

First, let's get familiar with environmental justice "priority areas" in our region using well-established characteristics.

We approximated environmental justice "priority areas" using Census data packaged in EJSCREEN, a U.S. Environmental Protection Agency resource. Priority areas were defined where *one or more of four demographic factors met an 80th percentile screening cutoff*. This helps us locate and prioritize communities where the impacts of environmental hazards could be intensified. There are several reasons this can occur, including under- resourced local governments, reduced access to healthcare or other health disparities, and a lack of accessible resources to help community members understand and avoid hazards or obtain treatment.

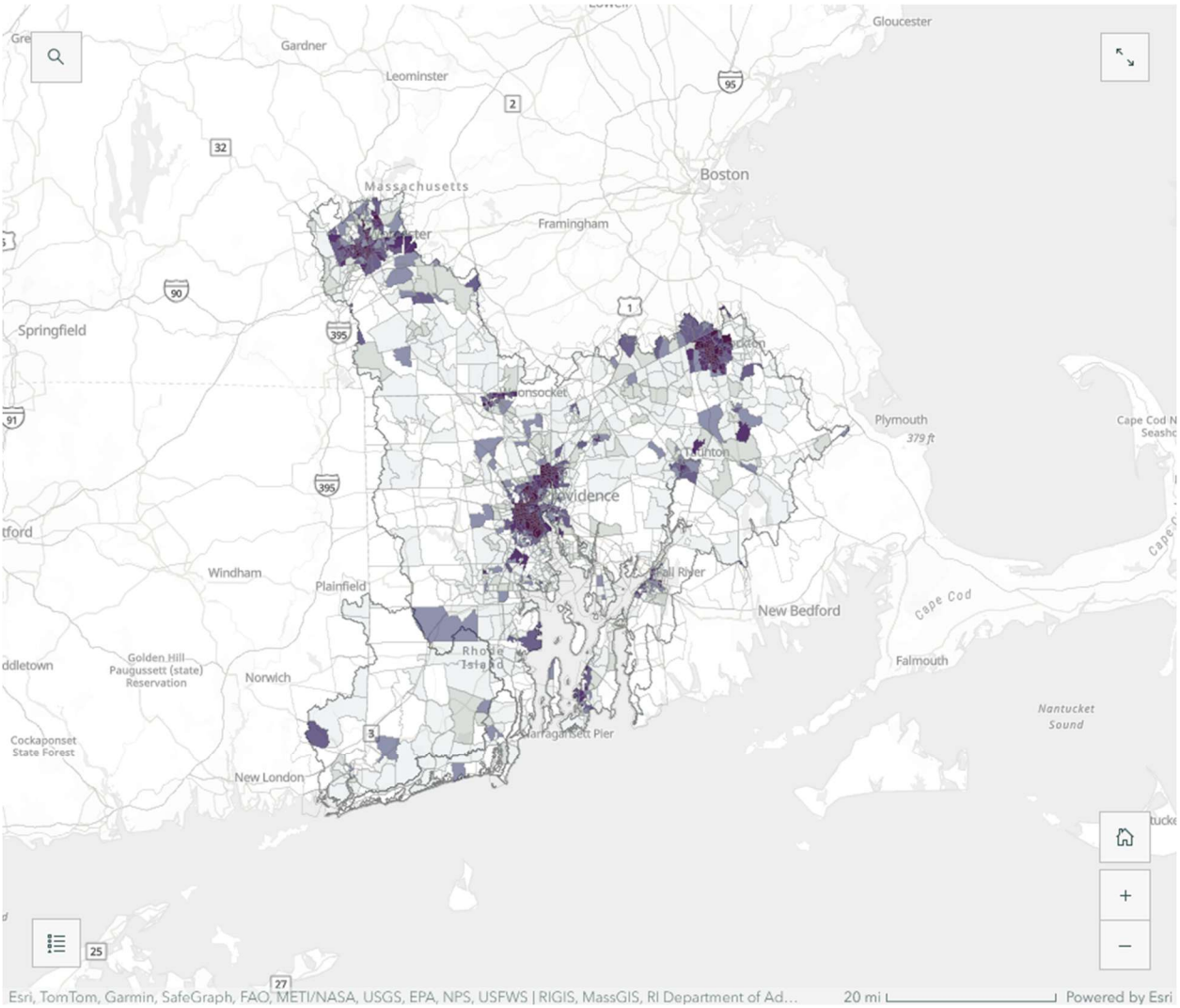


Data Source: U.S. EPA EJSCREEN 2019. Priority areas are based on 2017 American Community Survey 5-year estimates of block group level demographics, packaged in EJSCREEN. They are a rough estimation to identify core geographic areas. For more information about this dataset, jump to “Methods & Recommendations.”

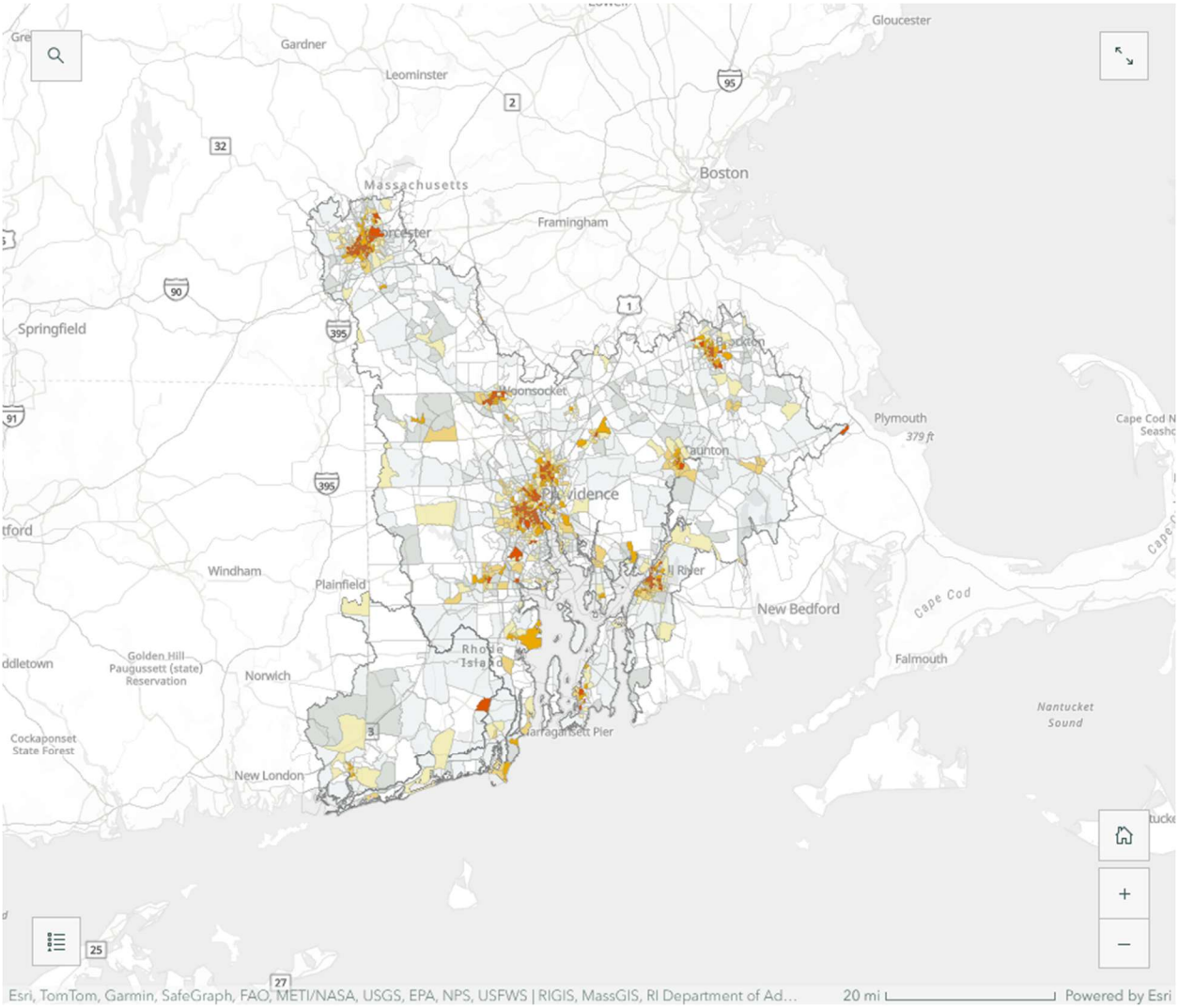
Use the buttons below to see how each factor contributes to identifying our priority communities via a common geographic story.

In the United States, race and ethnicity are highly correlated to financial security, educational attainment, access to resources, and perceptions of social class. The systemic linkages between race, poverty, health, and education put racial equity at the heart of environmental justice. Those common patterns are visible as you activate datasets on this map, and point to the structural roots that shape our communities and our region.

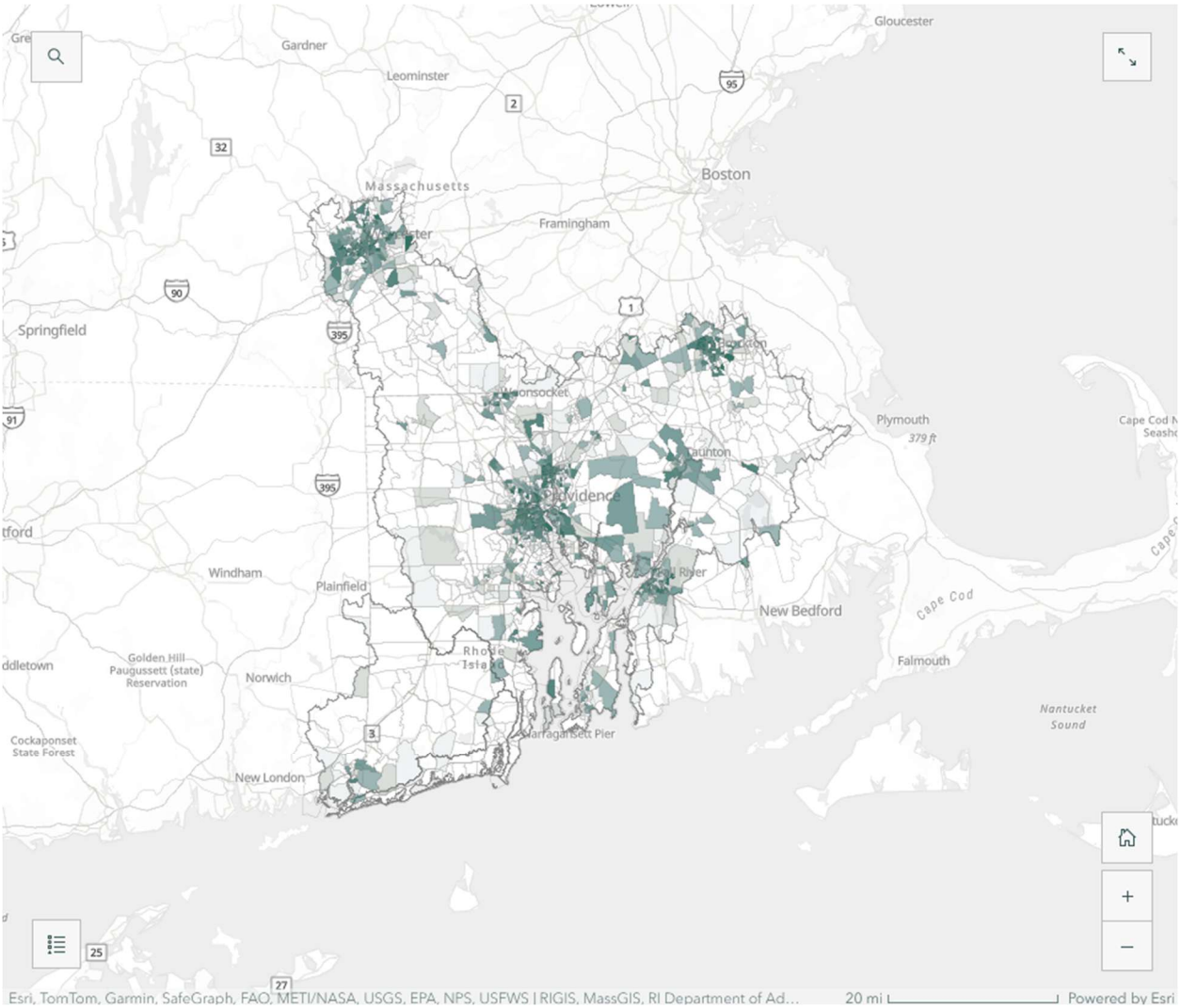
Non-White and/or Latinx



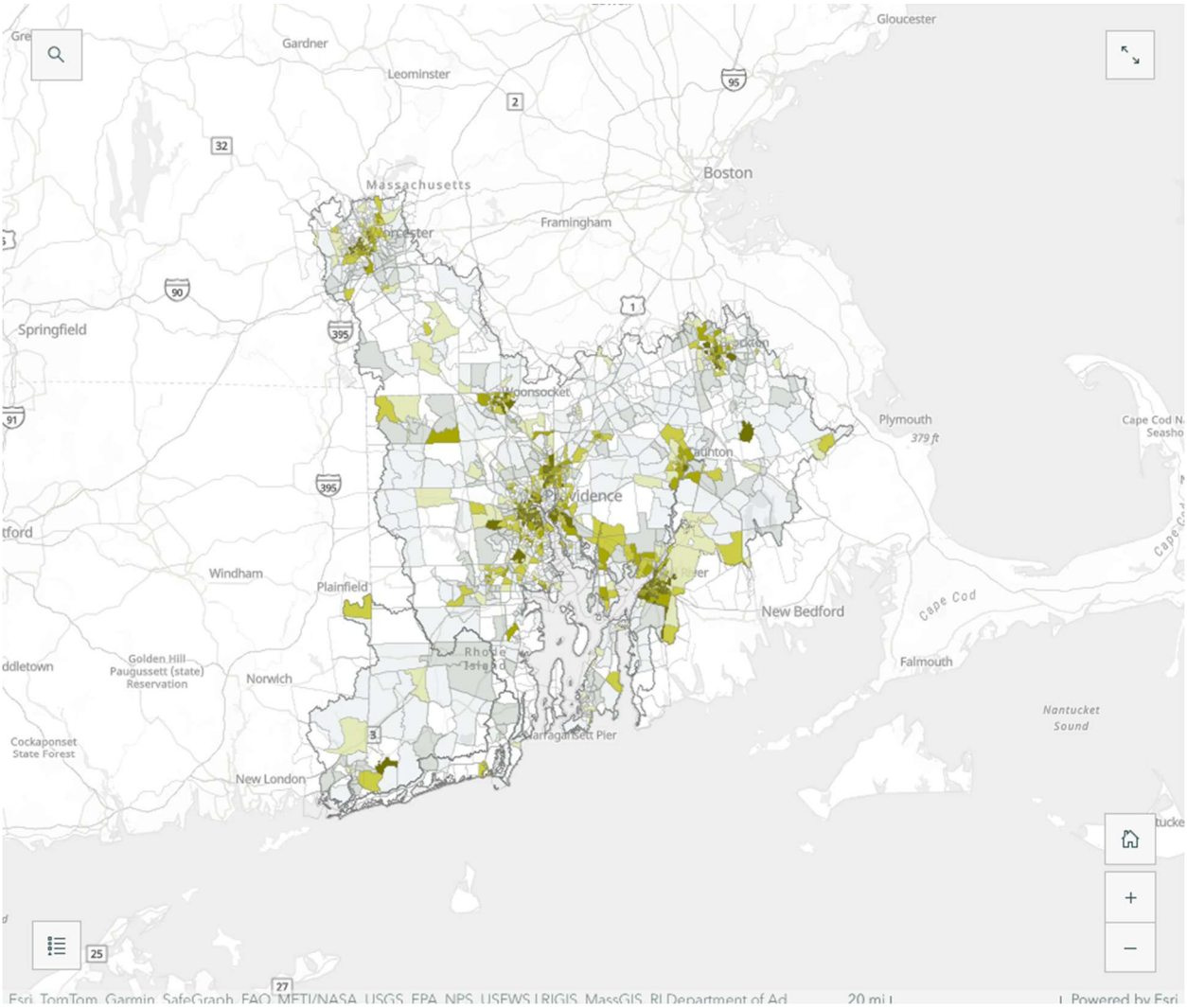
Low Income (less than 2x poverty level)



Limited English Households



Less Than High School Education



Now, let's explore the geographies of environmental benefits and burdens relative to our priority communities.

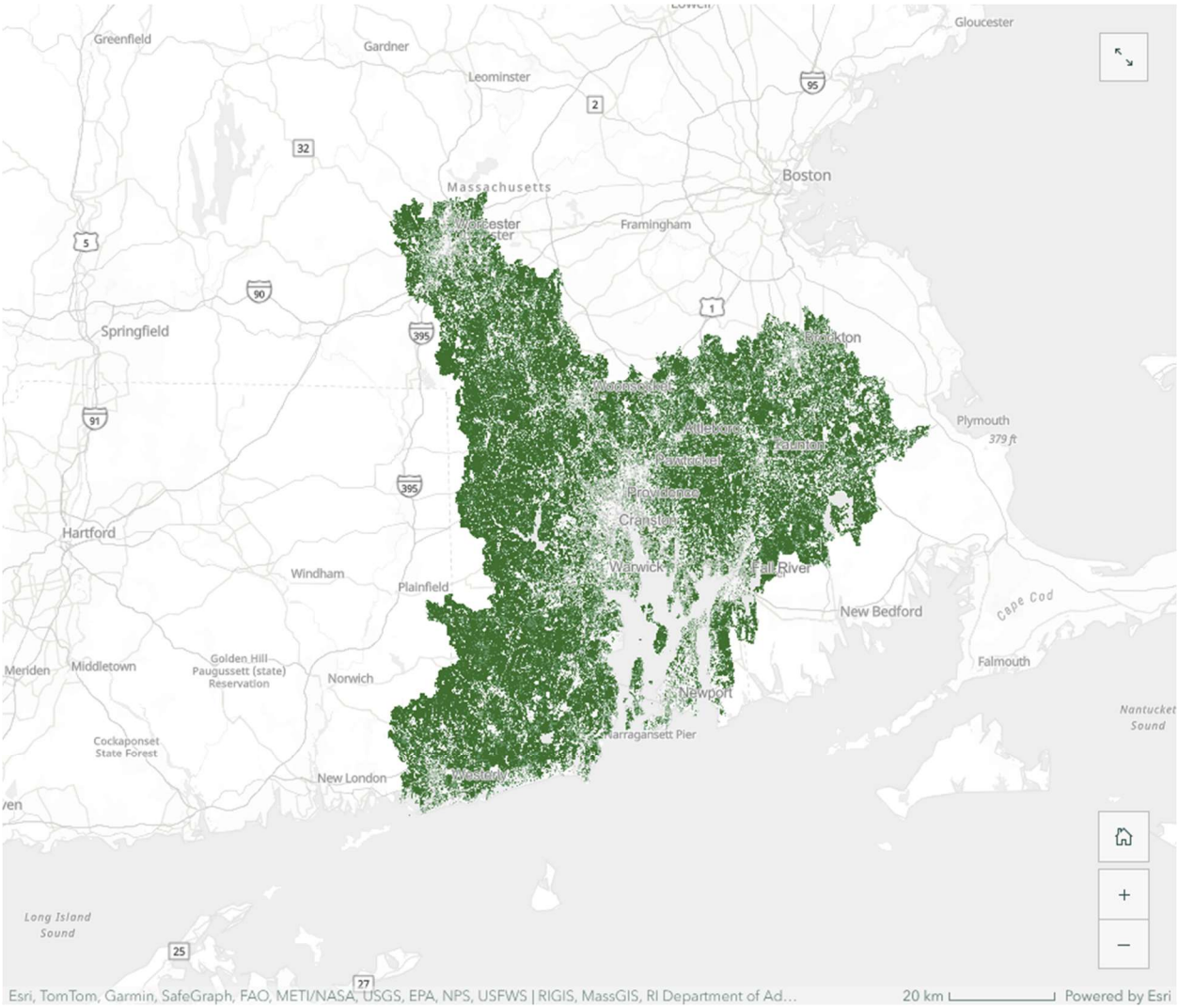
We'll take a close look at our region's landscape, waters, and environmental impacts on our quality of life. We'll explore how these elements are distributed relative to priority areas and, keep in mind, relative to our communities of color. *Where are the frontlines for effecting environmental change in our region?*

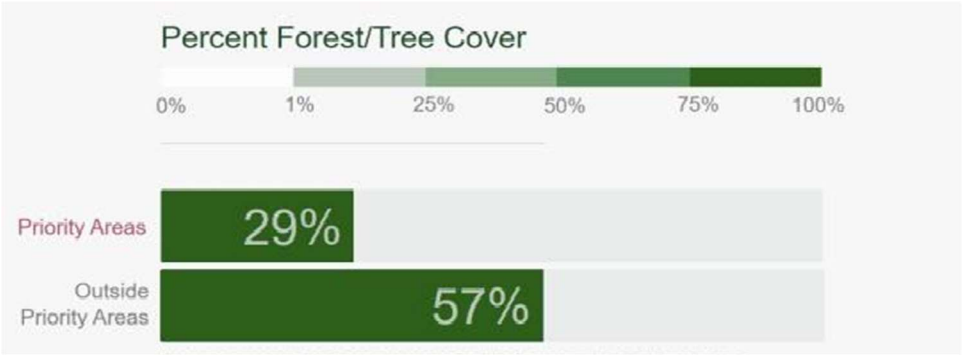
Landscape

From forests to parks to street trees—these slices of nature bring beauty to our big cities, rural towns, and backyards. Greenery is good for our health—both mental and physical.

Our landscape is lushly forested, but densely populated areas—where most environmental justice priority communities are located—are relatively bare.

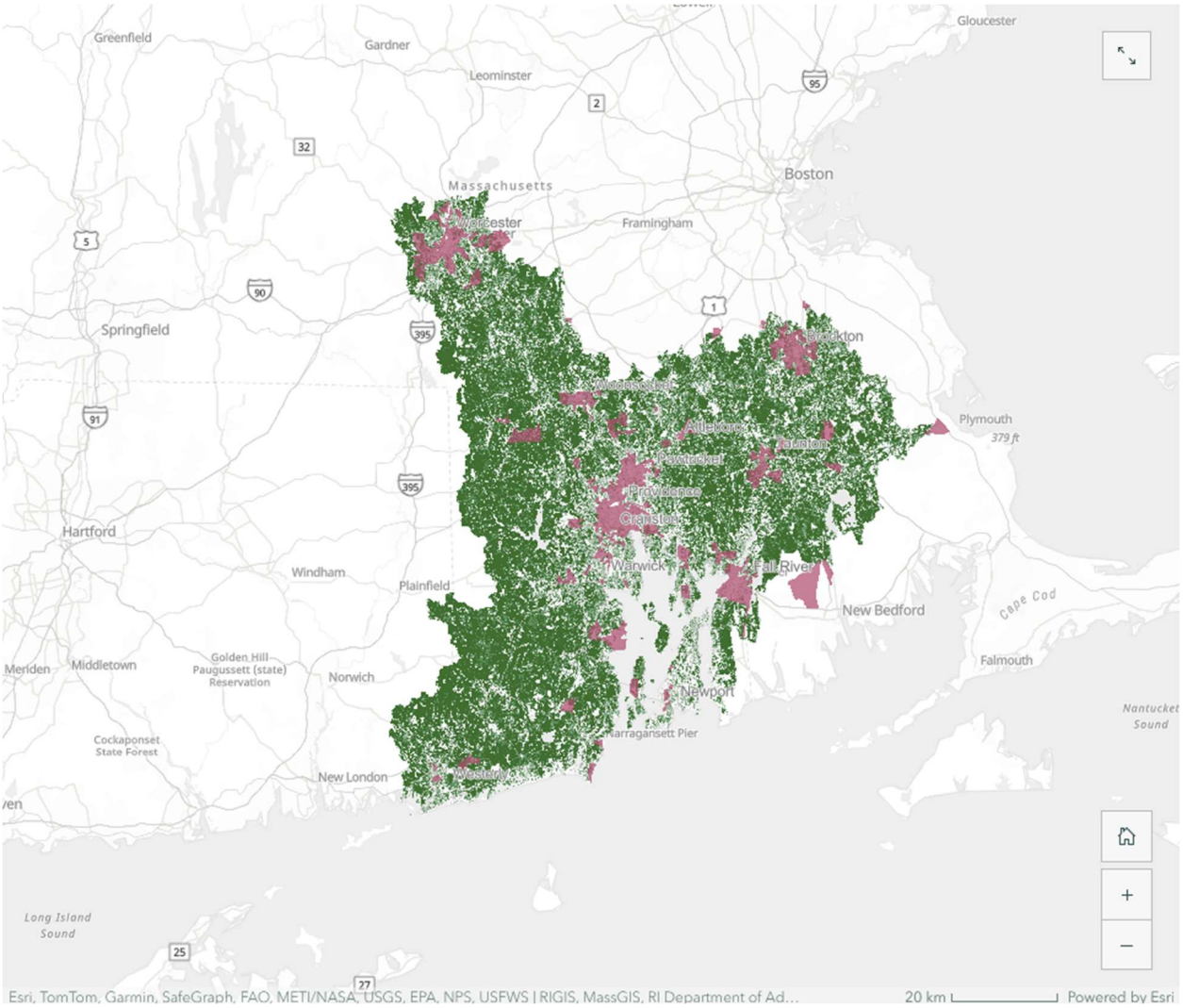
Take a look at this bird-eye perspective of our landscape. Our region has abundant forest and green spaces that are punctuated by sprawling, heavily populated developed areas—easily recognizable in the lighter areas around our bigger cities where trees thin out. These urban spaces certainly have some parks and trees to provide shade and greenery, but the contrast in the landscape is striking. Zoom in to explore more detail.





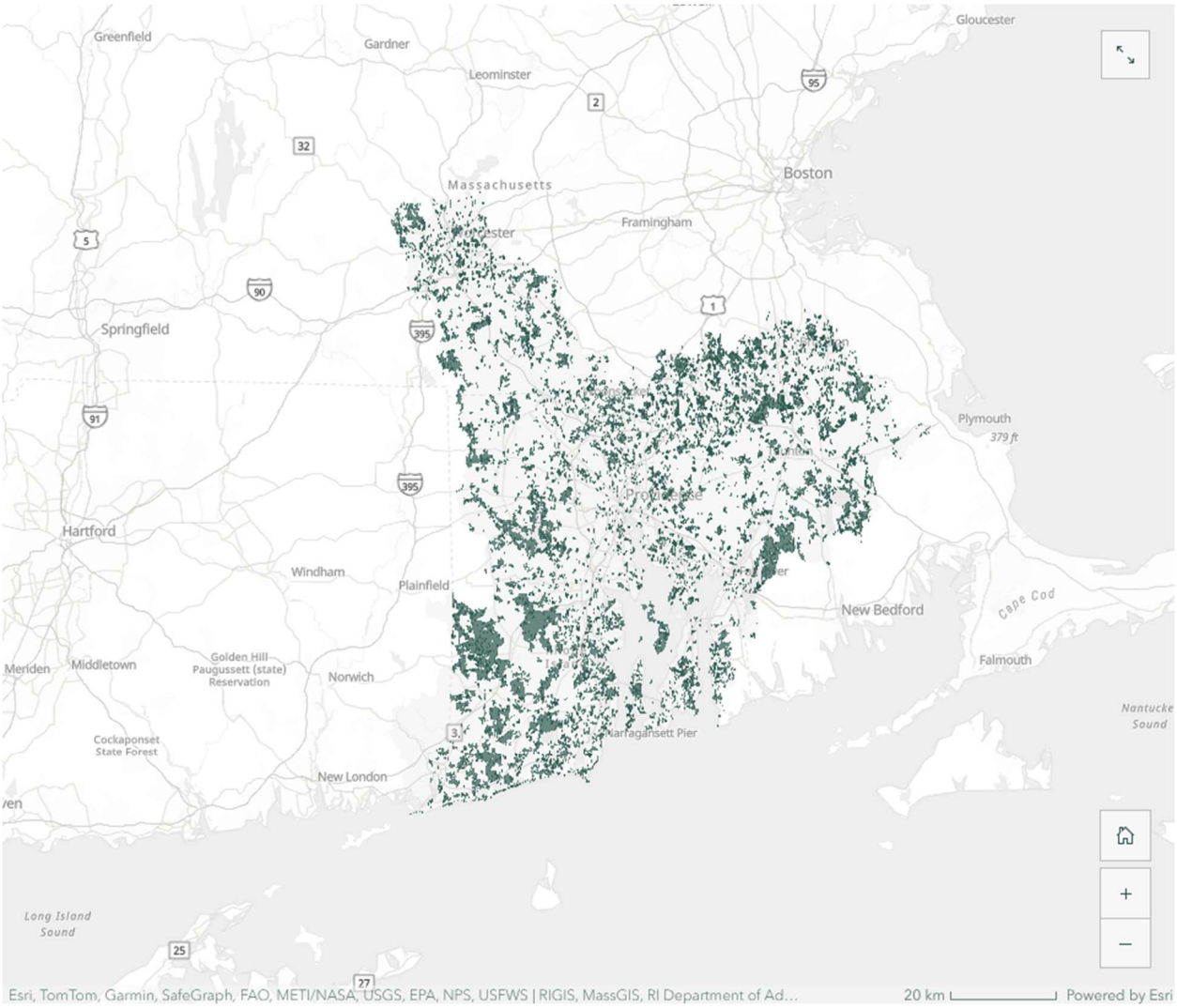
Average percent tree canopy cover for block groups in priority areas as compared to the surrounding areas; National Land Cover Database Tree Canopy Cover 2016

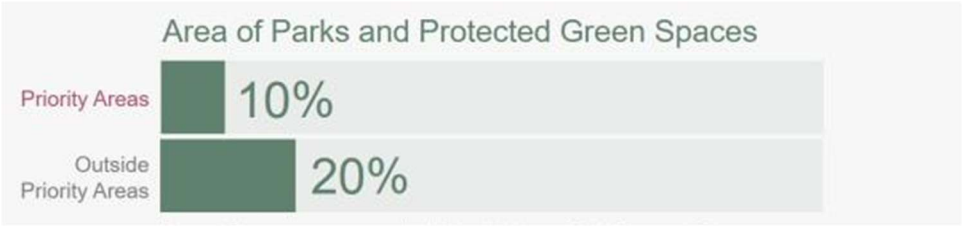
View Priority Areas on Map



Parks and green spaces are an important part of community life, yet under-resourced communities have less available green space.

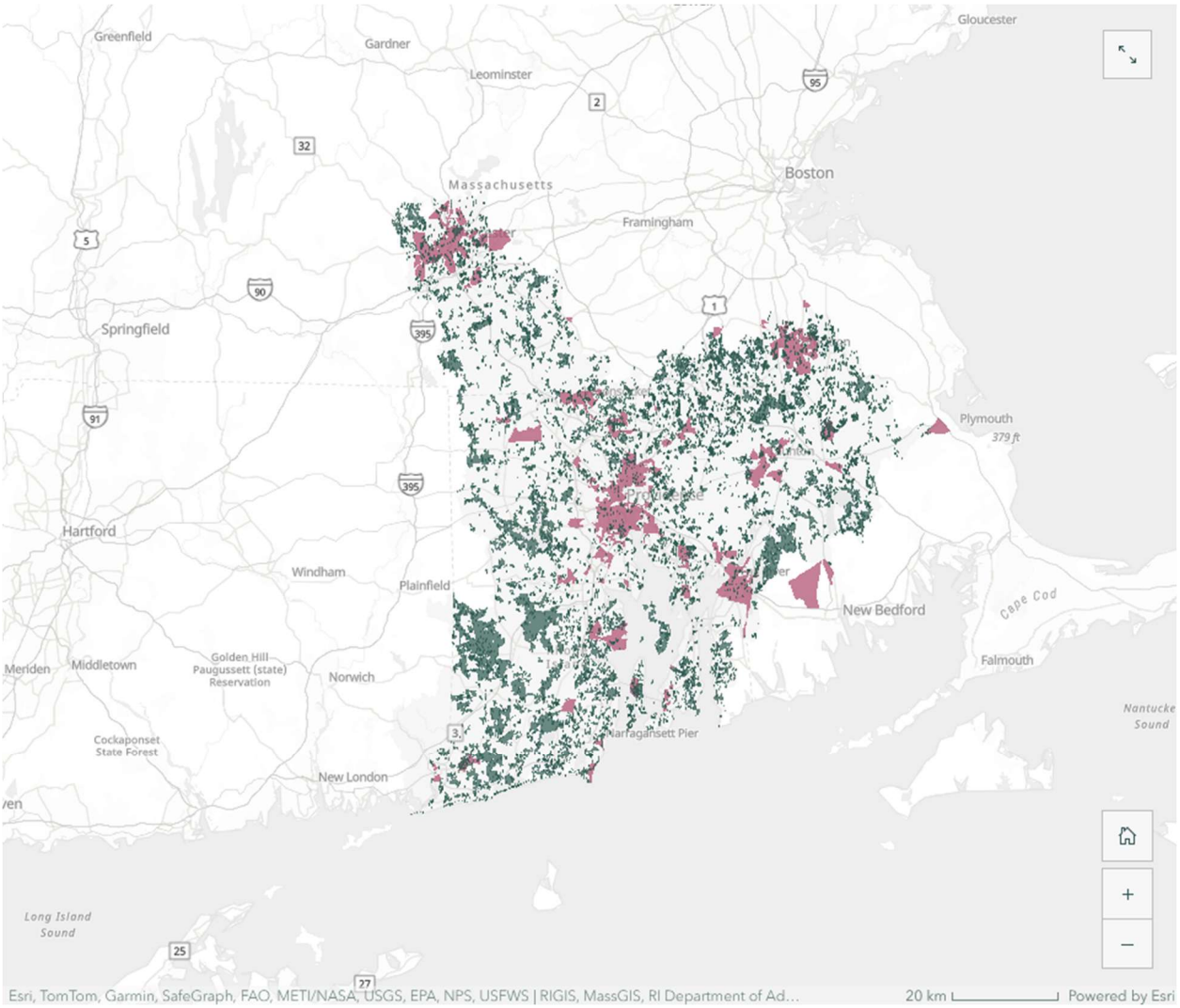
This is a map of the parks and open green spaces under town and state protections. These spaces are busy hubs for children's play, exercise, nature viewing, and community gatherings. The difference in green space availability inside and outside priority areas is suggestive of where natural resources may be needed. Where space is limited, greening unused lots and bolstering safety, upkeep, and services like parking, trash bins, seating, play structures, and art helps even the tiniest of parks bring a benefit to the community.





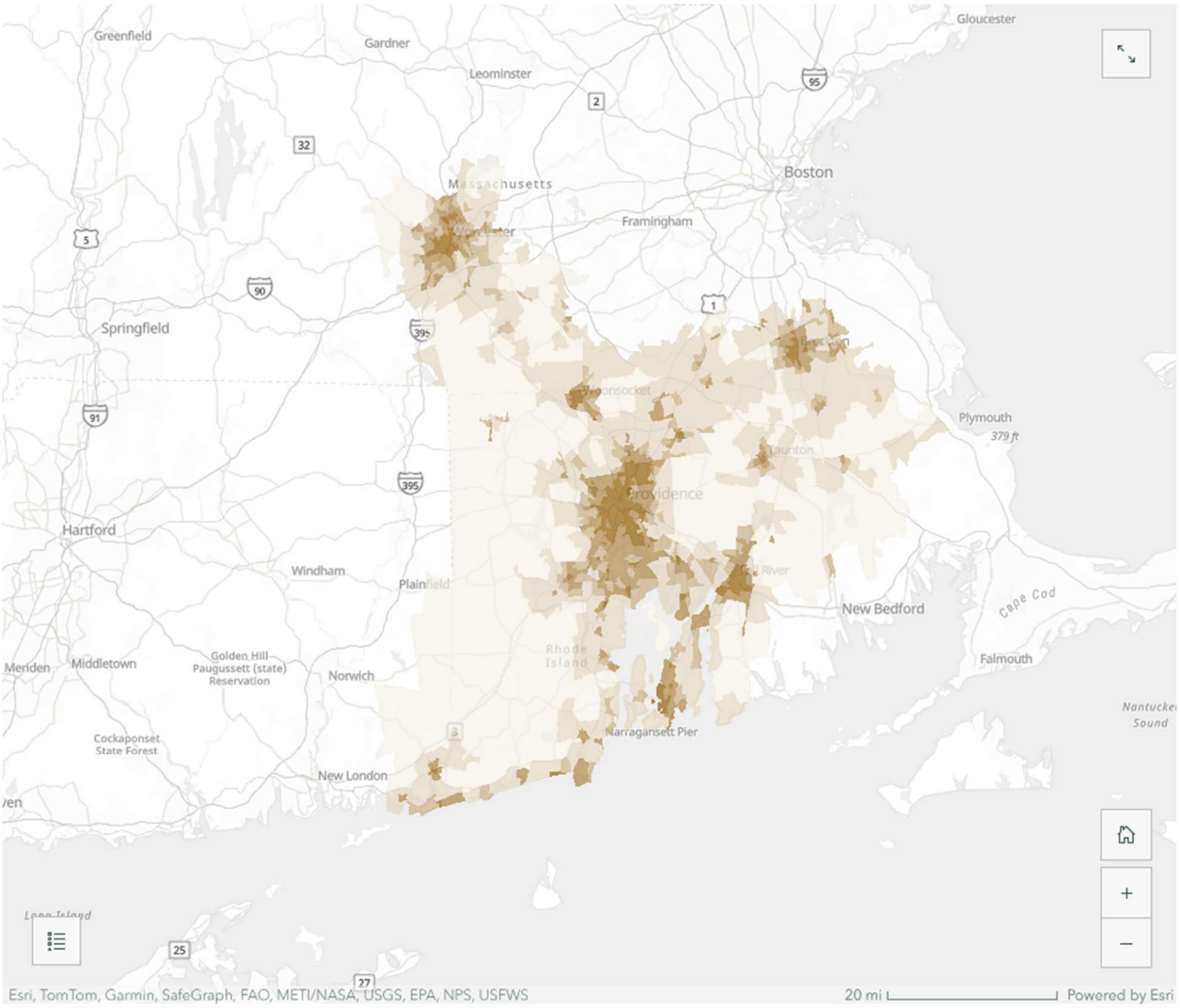
Percent of open space area divided by total area. Data Sources: RI Department of Environmental Management and MA Executive Office of Energy and Environmental Affairs. NBEP dataset summarizing reporting across MA and RI is available for download on our GIS Data Hub (Open Space Protected Land Use, 2015, NBEP 2017).

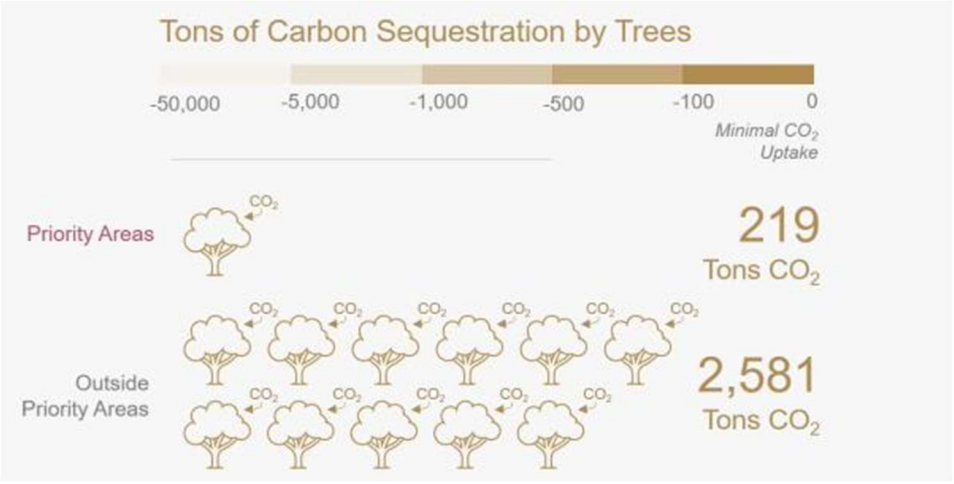
View Priority Areas on Map



Trees protect our future by sequestering nearly 3 million tons of carbon dioxide per year, region-wide. Greening under-resourced areas can bolster long-term regional sustainability.

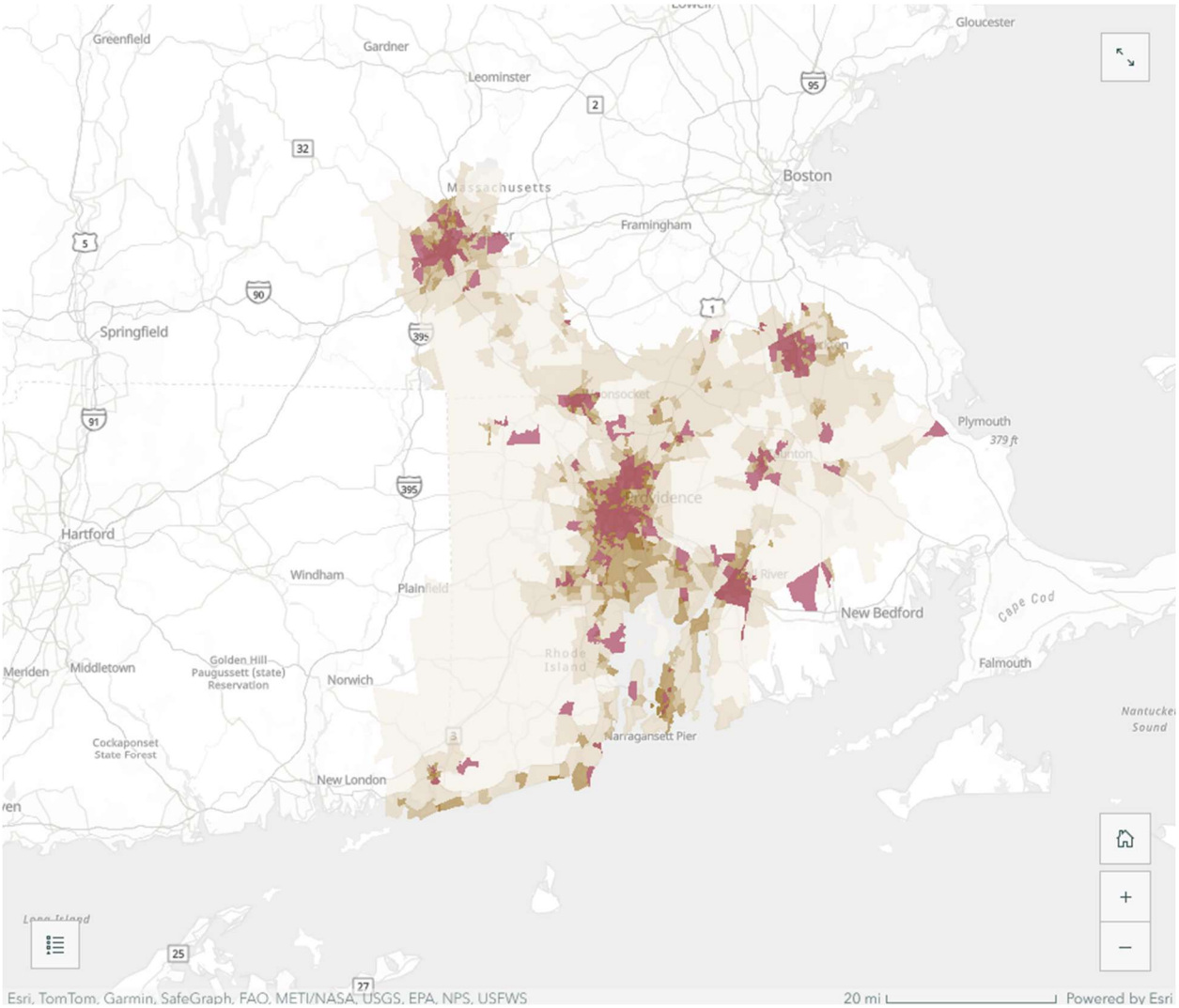
Carbon dioxide is a greenhouse gas that traps heat in the atmosphere, causing warming. Trees take up carbon dioxide through photosynthesis. This is vital for slowing warming and reducing impacts to the environment and public health. On this map, darker areas indicate where carbon dioxide uptake is minimal due to reduced tree cover. Continuing to green our communities not only provides shade and green space now, but also benefits us all by increasing our region's resilience to climate change.





Average carbon dioxide sequestration by the tree canopy for block groups in priority areas as compared to surrounding areas in metric tons per year; Data Source: iTree Landscape v4.3.1

View Priority Areas on Map

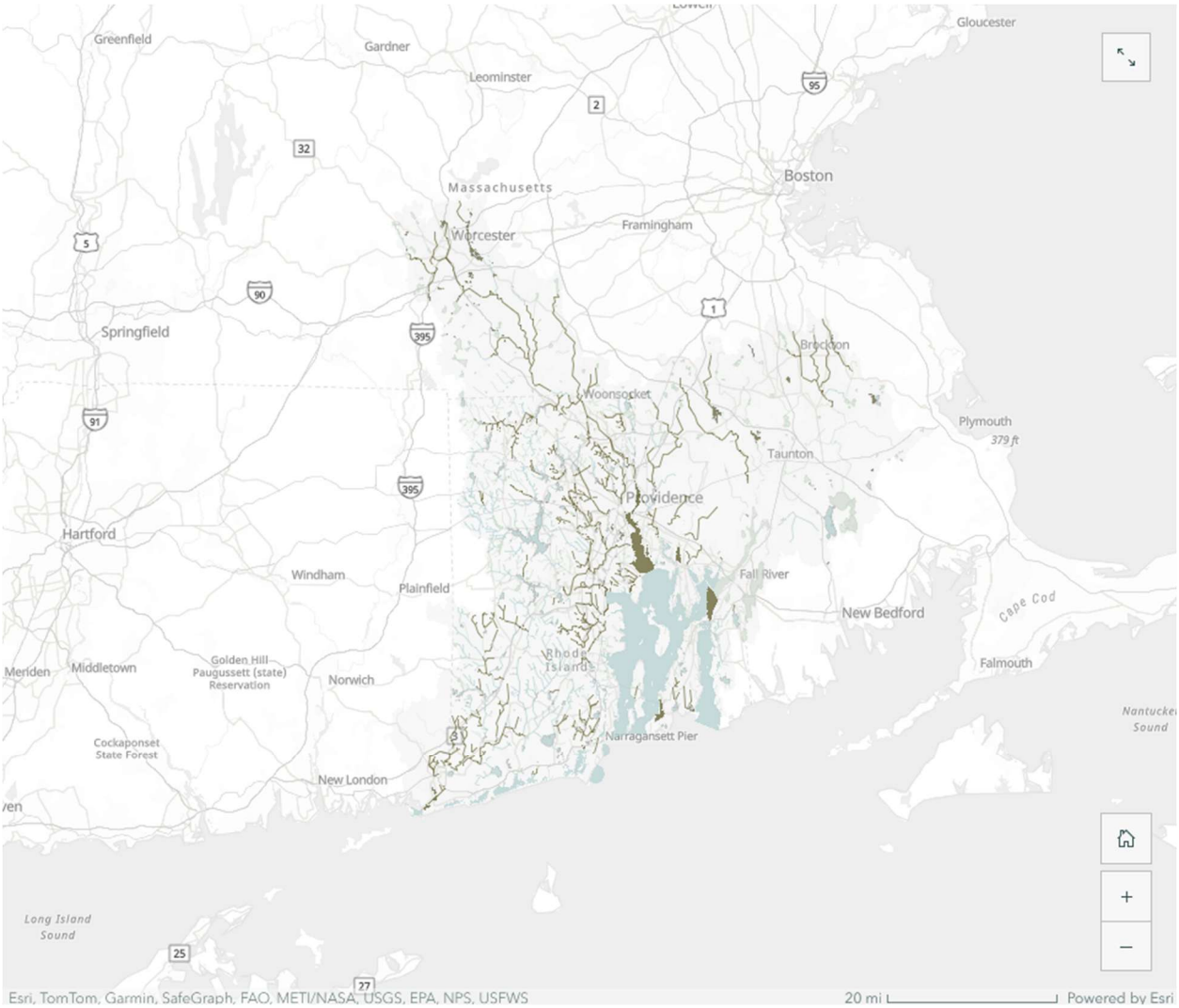


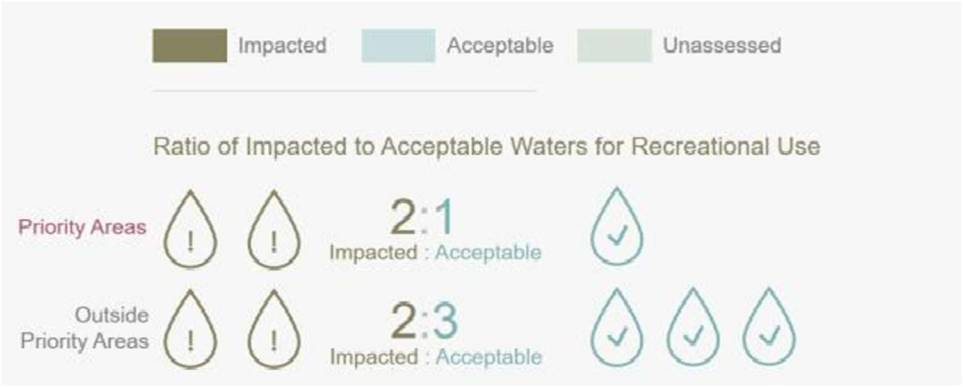
Water

We benefit from clean water for drinking, for recreating, and for a healthy environment; yet, many of our communities are burdened by water pollution issues.

Quintessential to our regional identity is our ability to hit the beach, go fishing or boating, or hike a nature trail. Clean water makes those experiences safer and more enjoyable.

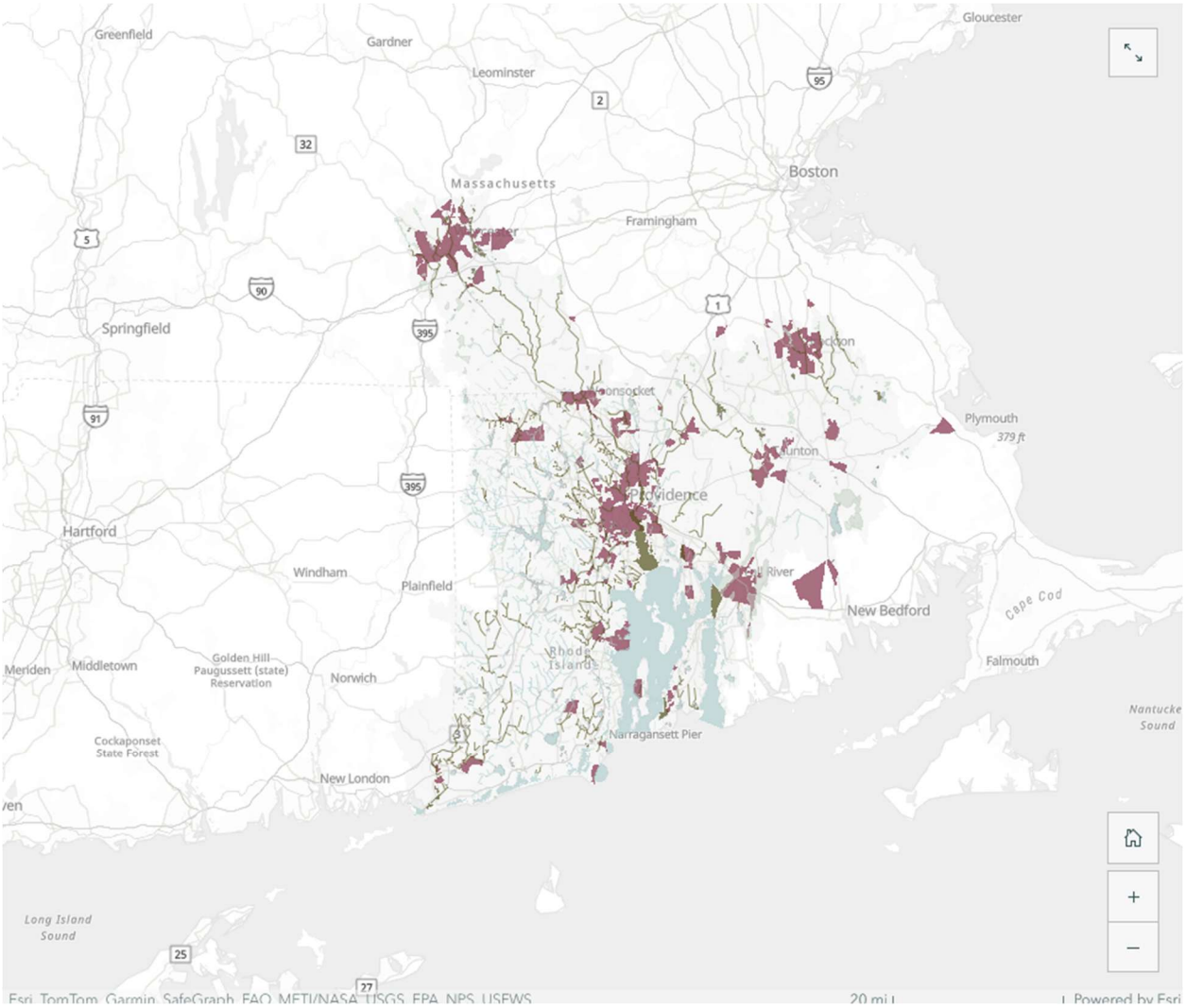
Unfortunately, not all our waters are pristine. Beaches and shellfishing are regularly closed in the summer due to bacteria from old septic systems and land runoff (RI Beach Monitoring, RI Shellfishing Closures). Trash, odor, and other unpleasant things also detract from enjoyment of the water. This map shows state recreational water quality assessments based on testing for bacteria and other factors. 78% of priority communities are within a half mile of an impacted water body (dark green). There are more impacted waters compared to acceptable waters (blue) in priority areas, while the reverse is true for surrounding areas.





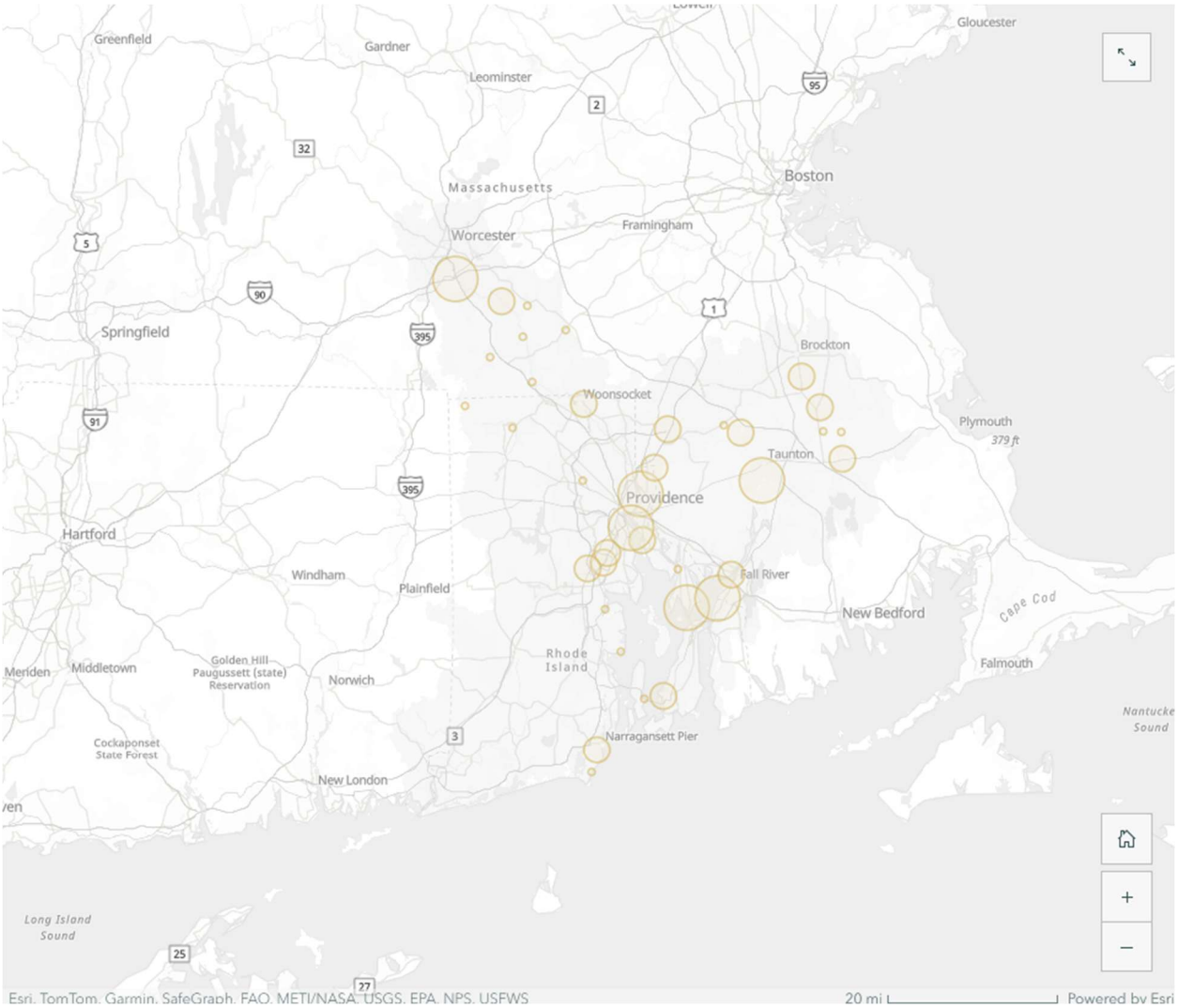
Total count of waterbodies within 0.5 miles classified as impacted for recreational use divided by total count of waterbodies within 0.5 miles classified as acceptable for recreational use. Data Sources: RIDEM and MassDEP Assessment Databases, 2014. NBEP dataset summarizing reporting across MA and RI is available for download on our GIS Data Hub (Water Quality for Recreation, 2014, NBEP 2017).

View Priority Areas on Map



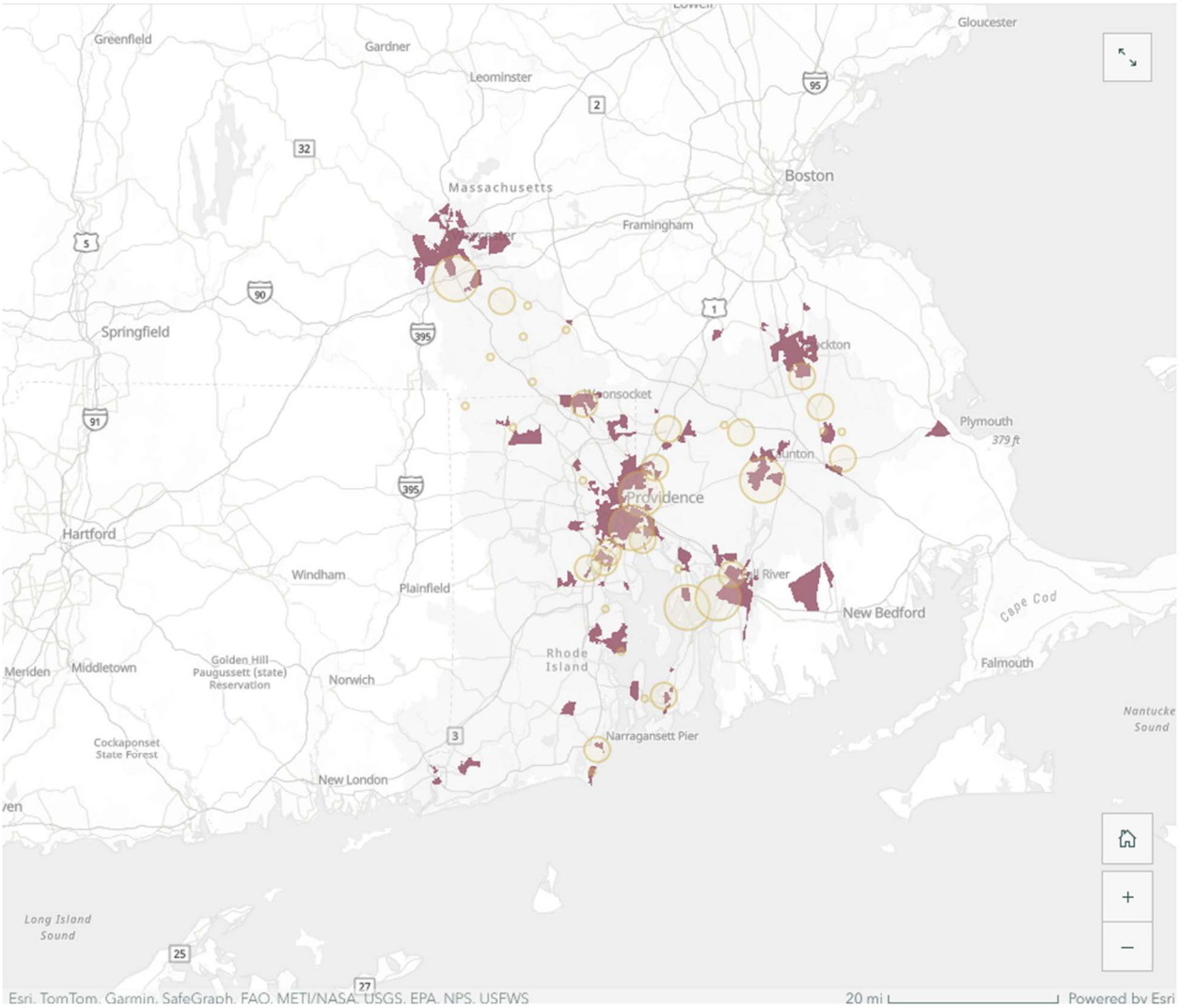
Nutrient-loaded wastewater discharge is concentrated near priority communities with downstream effects on the health of the bay.

Treatment facilities are tasked with cleaning wastewater before discharge to waterways. These facilities remove bacteria, which helps keep beaches and shellfishing open. Nutrient pollution has become the new focus over the last decade. Excess nutrients create imbalances, leading to problems like algal blooms and fish kills. The Narragansett Bay Commission, Upper Blackstone Clean Water, and an increasing number of smaller facilities have been making strides in nutrient pollution removal technology.



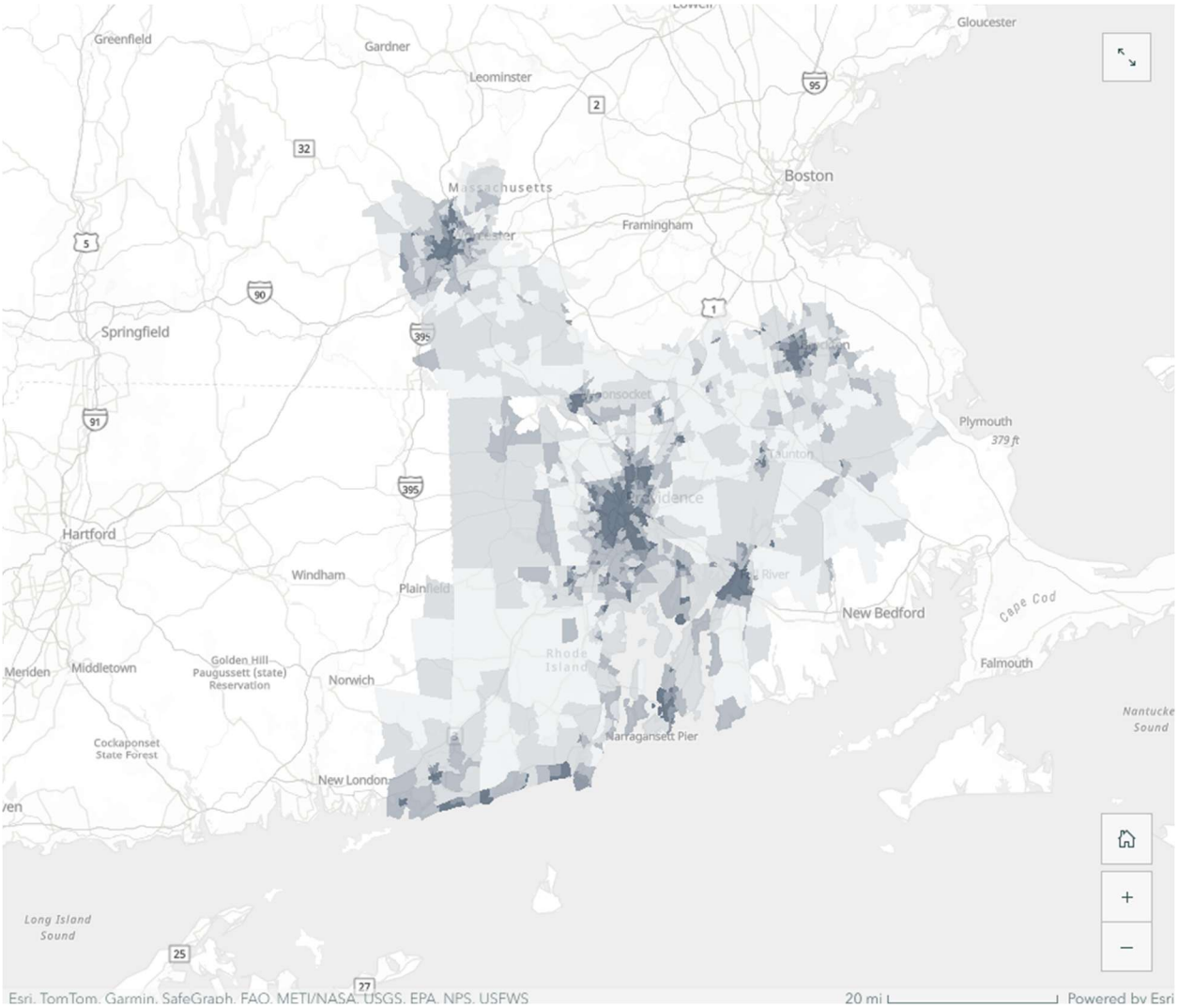
Nitrogen contribution from wastewater treatment facilities within 0.5 miles of a priority areas in 2013-2015 – percent contribution relative to region total. Data Sources: RI Department of Environmental Management, EPA, MA Department of Environmental Protection, and individual facilities. NBEP dataset summarizing reporting across MA and RI is available for download on our GIS Data Hub (Nutrient Loading 2005-2015 WWTF, NBEP 2017).

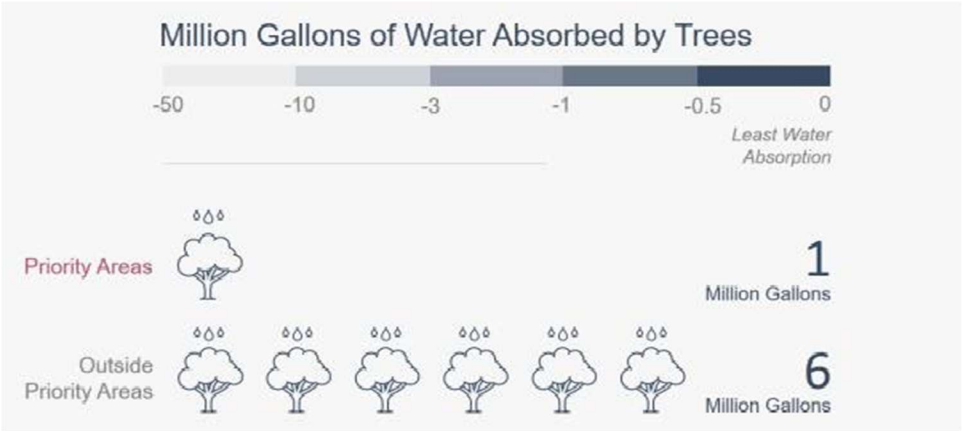
View Priority Areas on Map



Trees save our communities $56 million in avoided runoff—but those benefits are smaller in under- resourced communities.

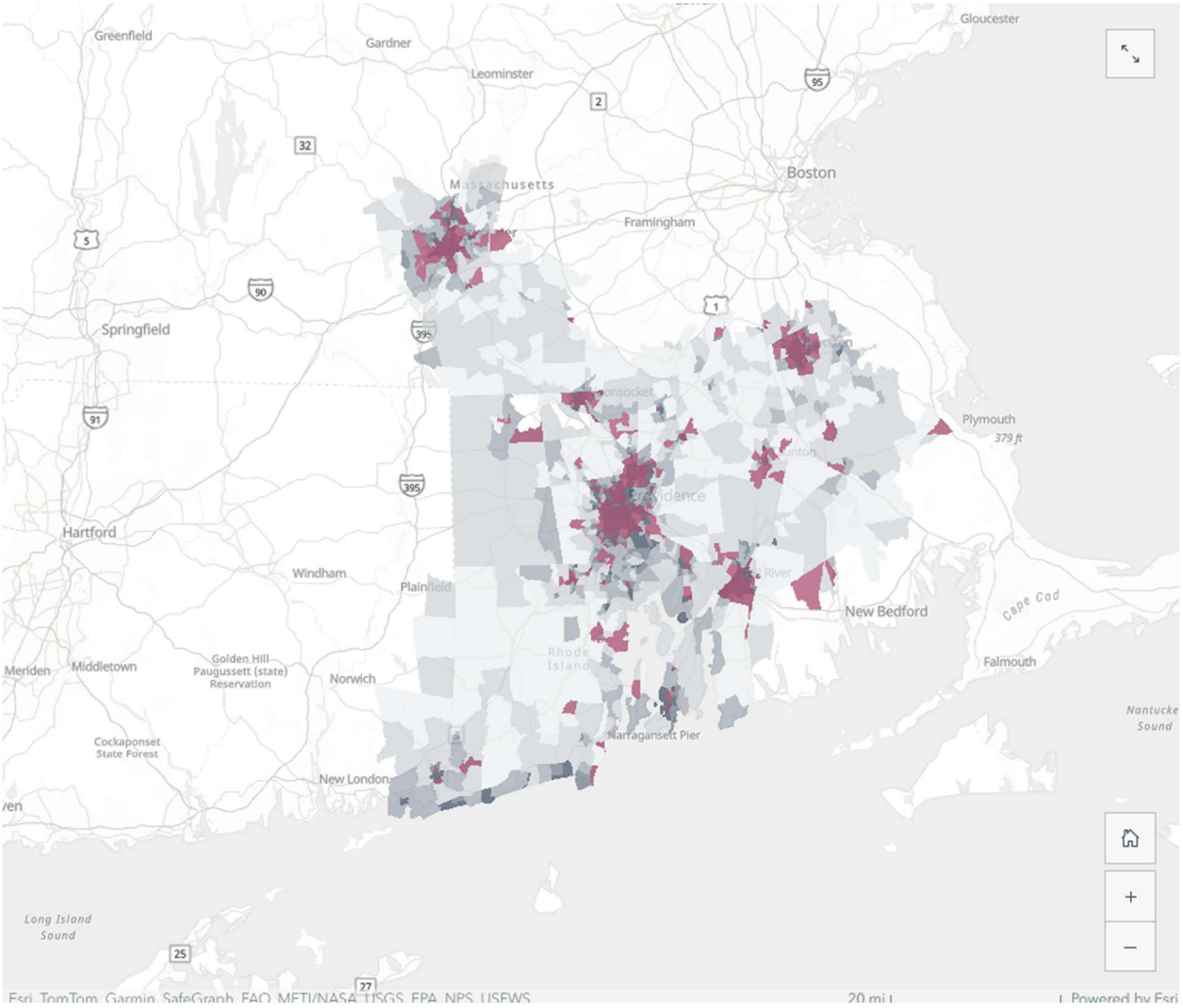
Many of our communities are overburdened with the upkeep of expensive, aging infrastructure that diverts filthy rainwater and dumps it into waterways untreated. Flooding, storm runoff, and water pollution are common in areas with few trees and a great deal of impermeable pavement. Healthy and mature trees are highly efficient at soaking up rainfall—before it gathers pollutants. While the tree canopy's surface swiftly evaporates rainfall, the root systems drink up huge quantities of rain.





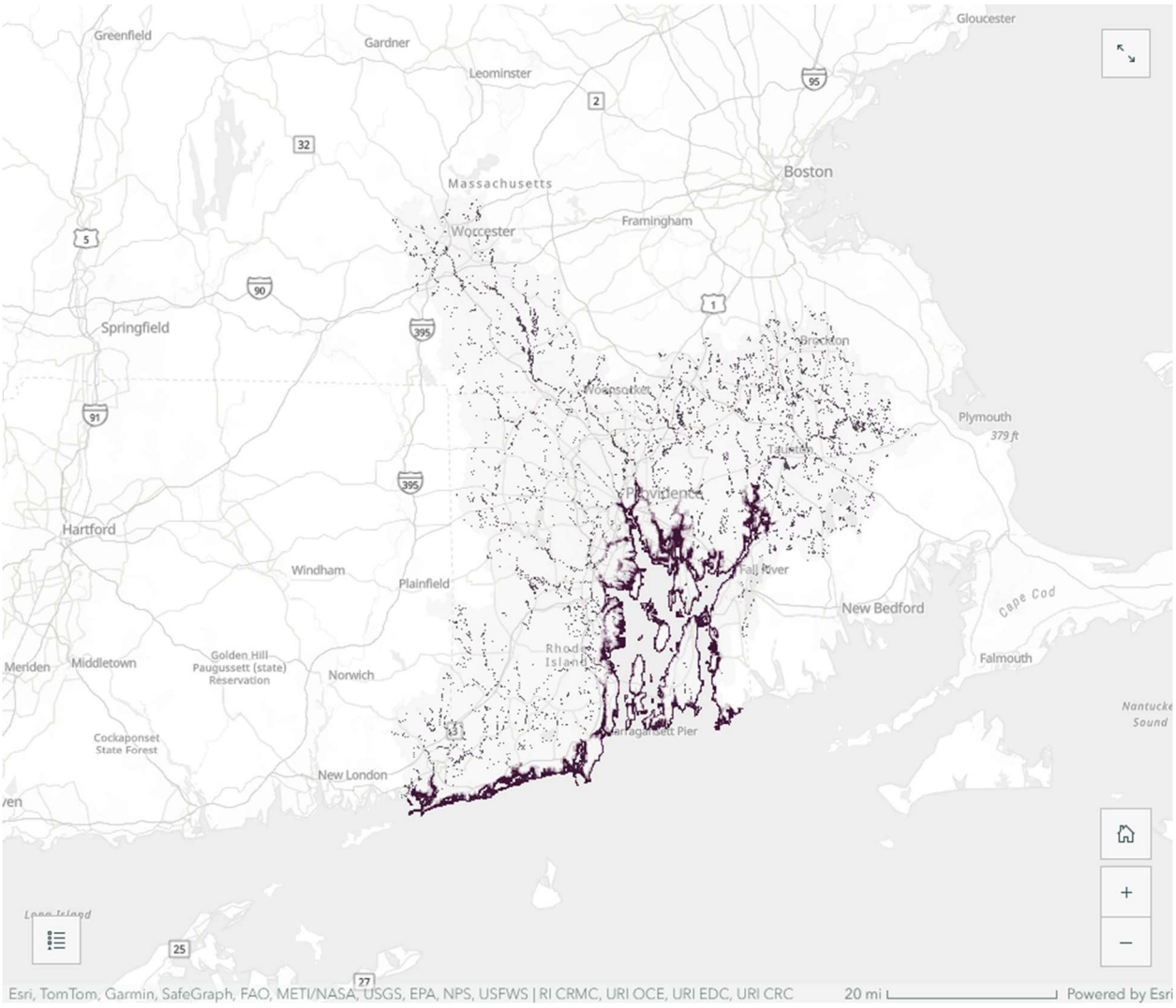
Average rainfall absorbed by the tree canopy (avoided runoff) for block groups in priority areas and surrounding areas in millions of gallons. Data Source: iTree Landscape v4.3.1.

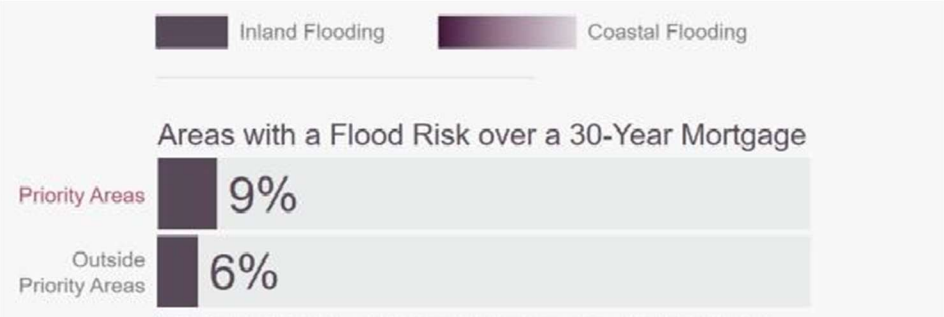
View Priority Areas on Map



Flooding is a widespread issue for many of us in the region, and it is especially hard on under- resourced communities.

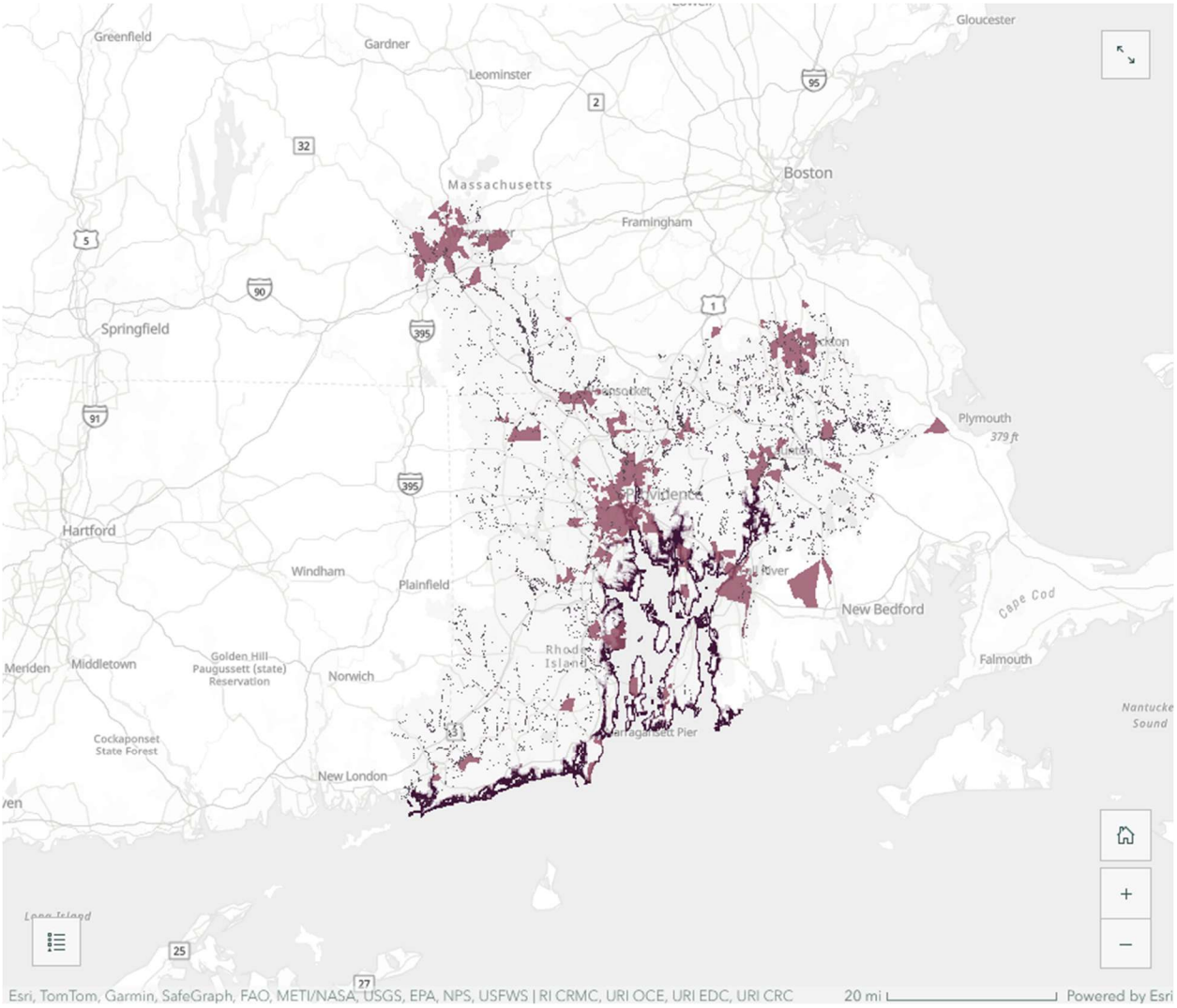
Flooding disrupts communities—from expensive property damages, to dangerous water contamination and mold, to hindering day-to-day life such as trips to the store or to work. Priority communities have about 50% more area in flood zones compared to the rest of the region. Many of the priority areas are already overburdened, making them more vulnerable to flooding events as well. Communities with fewer resources have less capacity for long-term flood planning, and many of the residents of these communities have fewer resources to recover from flooding events.





Data Source: Proportion of total area within zones with a high risk of flooding within a 30-year mortgage. Inland flood zones are Federal Emergency Management Agency (FEMA) National Flood Hazard Layer high risk zone "A." Coastal flood zones are FEMA high risk zone "V" or STORMTOOLS 2020 100-year storm at 5-foot sea level rise, which represents the worst-case scenario within a 30-year mortgage. Data Source: FEMA 2011; STORMTOOLS 2020.

View Priority Areas on Map

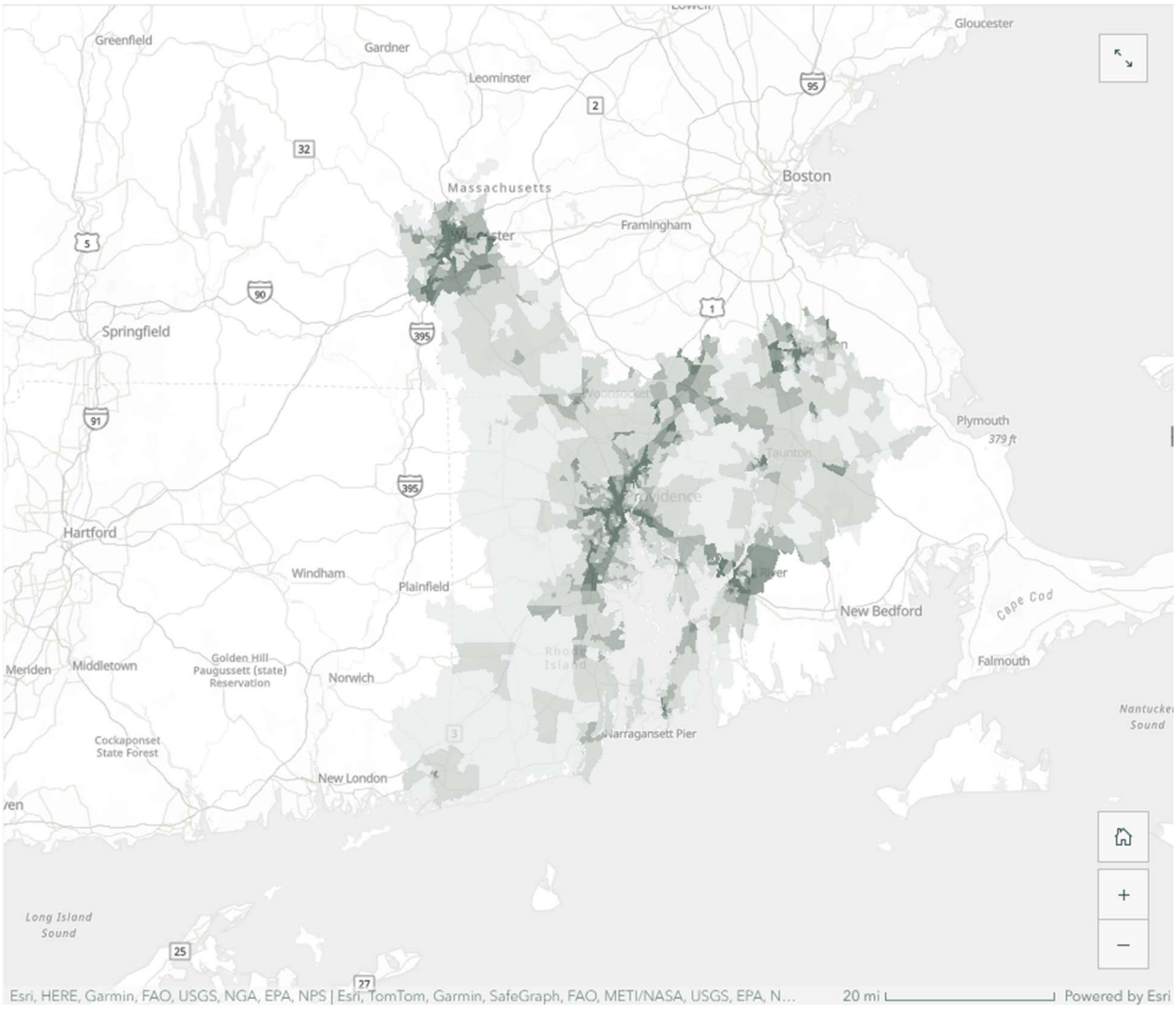


Quality of Life

Our day-to-day experience is affected by our natural surroundings. Our well-being is improved by greenery, clean air, and clean water. But it can be dampened—and our health jeopardized—by regular contact with environmental and health hazards such as traffic, poor air quality, and heat waves.

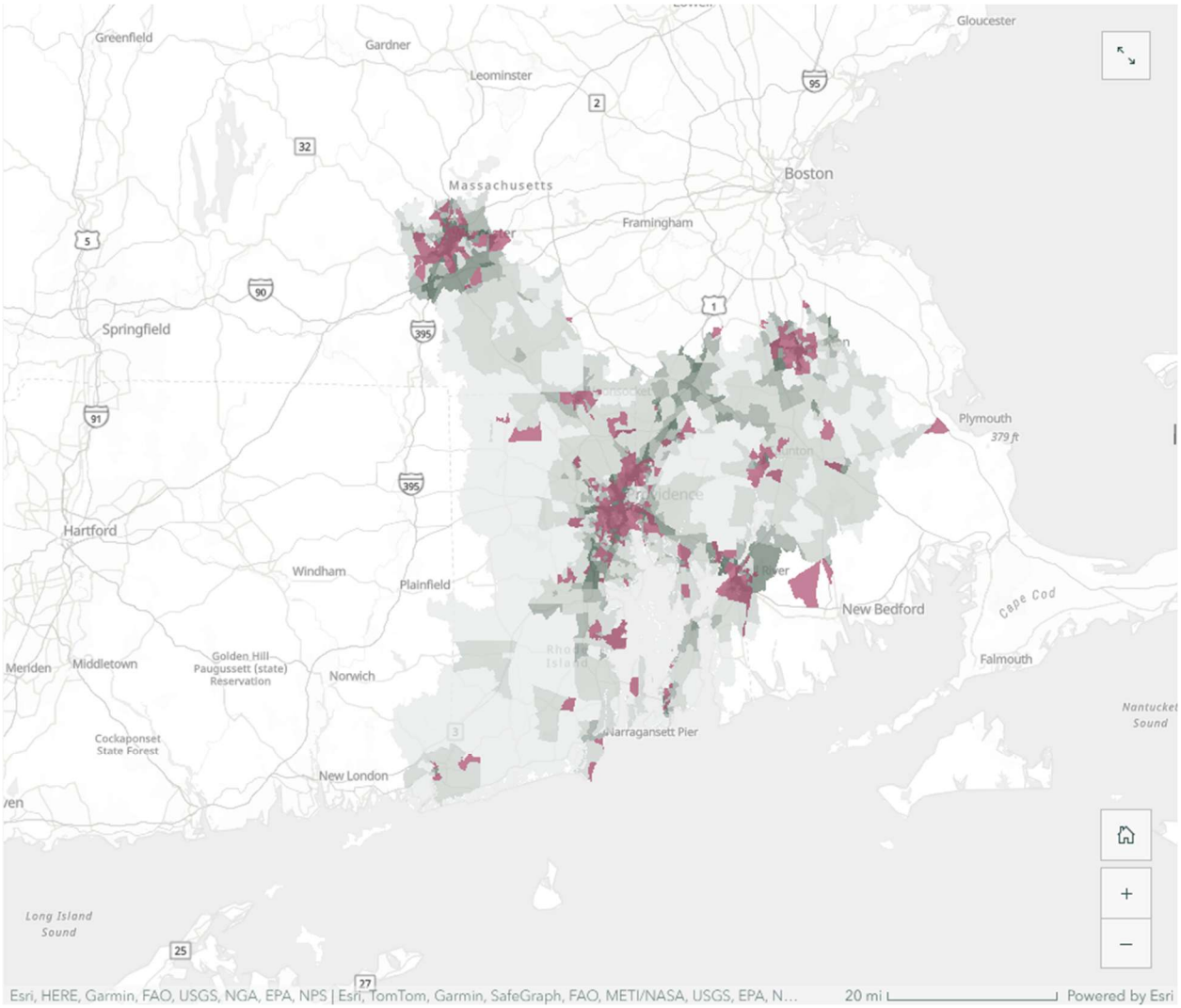
Traffic congestion near major highways and urban areas places greater burden on under-resourced communities.

City dwellers know well the soundtrack of engines, horns, and sirens that accompanies daily life. Those familiar sounds come with a cost to more than just peace and quiet. Traffic also impacts temperature, air quality, property values, and motor vehicle safety. This map of traffic proximity—a single measure that combines traffic volume with distance to nearby roads—has striking overlaps with the distribution of priority communities.



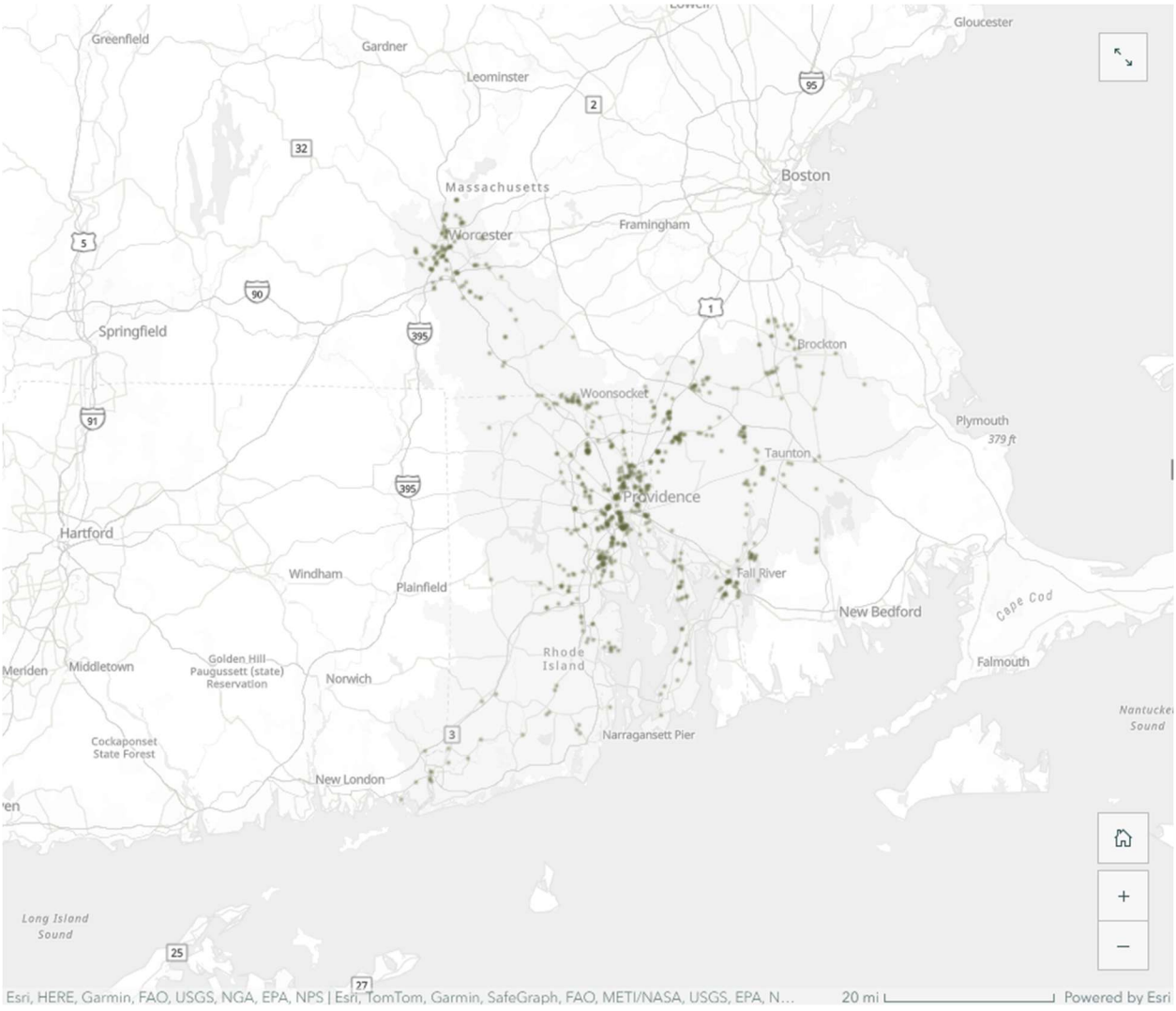
Block Group average; Index of traffic proximity and volume, calculated as the count of vehicles (average annual daily traffic, 2017 U.S. Department of Transportation) at major roads within 500 meters, divided by distance in meters; Data Source: EJSCREEN 2019. NBEP dataset summarizing reporting for the Narragansett Bay region is available for download on our GIS Data Hub (EJ Priority Areas, 2019, NBEP 2021).

View Priority Areas on Map



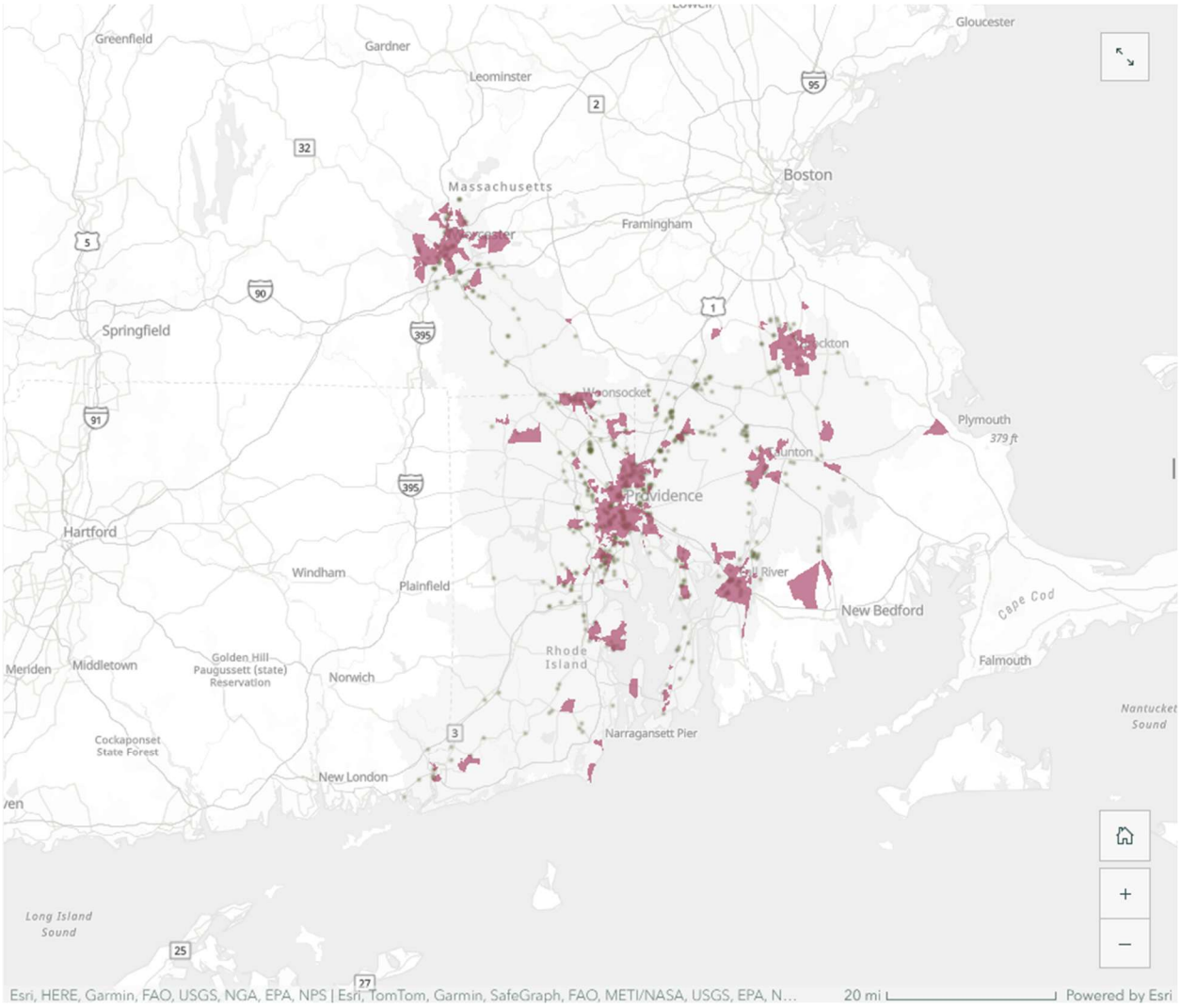
Priority communities are home to greater numbers of industrial facilities that manage toxic chemicals.

The EPA Toxic Release Inventory compiles all industrial and federal facilities that manage chemicals that cause cancer, chronic illness, acute health effects, or environmental harm. Facilities are required to report to the EPA annually on substance management and chemical releases to provide data to the public and inform emergency planning. This map shows the location of the 786 facilities identified in the region.



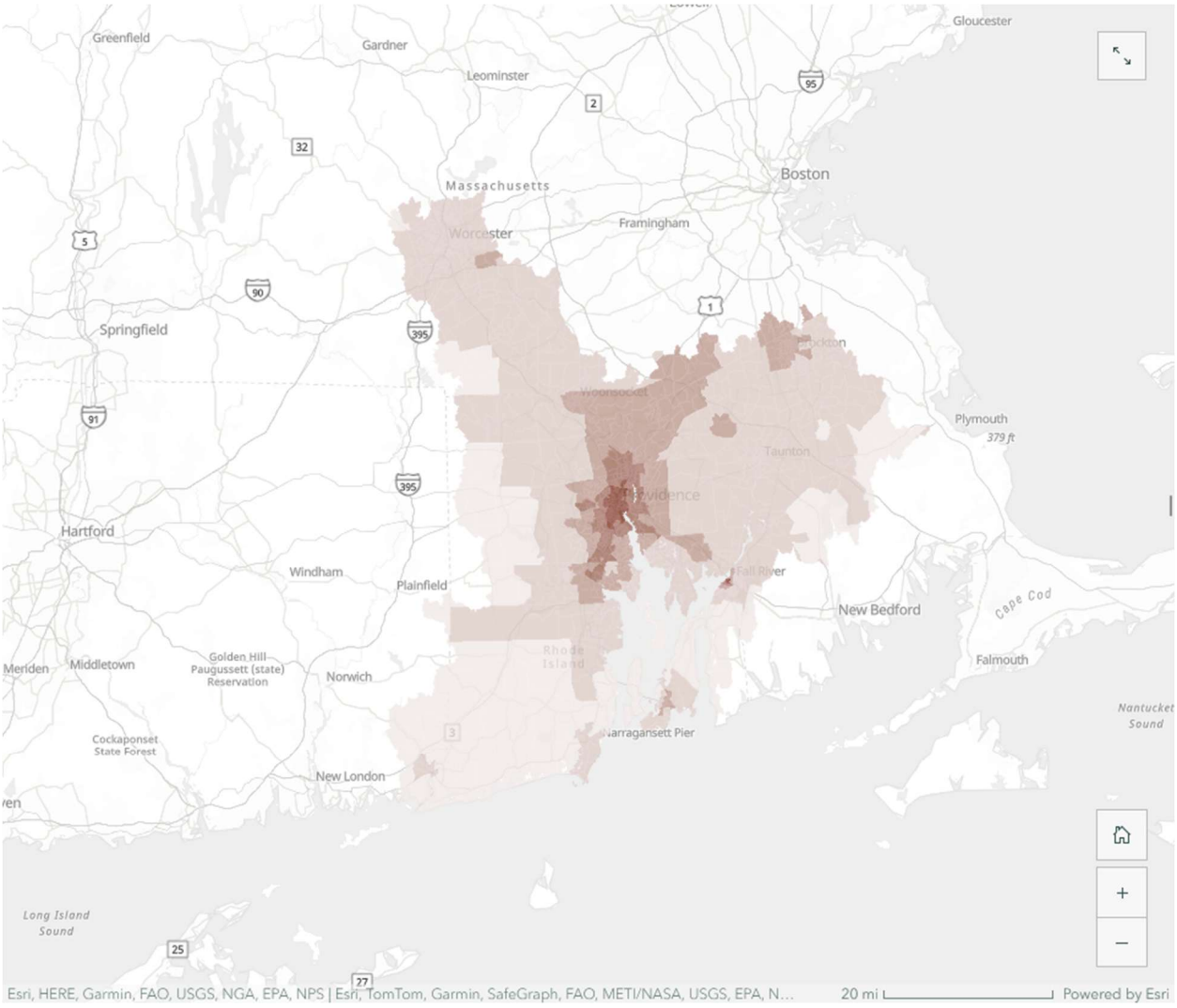
Total count of toxic release inventory (TRI) facilities divided by total square miles. Data Source: EPA Facility Registry Service Collection 2018. Note that this map displays the location of TRI facilities and does not indicate their compliance or non-compliance with toxic chemical management regulations.

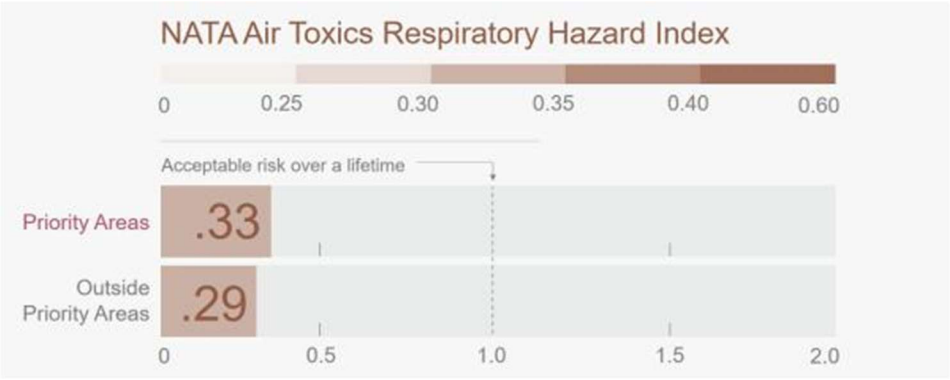
View Priority Areas on Map



Toxic air pollutants are at acceptable levels in our region, but are more concentrated in central and northern areas.

EPA's National Air Toxics Assessment (NATA) Respiratory Hazard Index calculates the concentration of air toxins relative to allowable levels. Air toxins come primarily from traffic congestion and industrial activities. All areas in the region are at an acceptable risk over a lifetime (index below 1); still, relative hotspots of air pollution are visible along I-95 and near Worcester, Providence, Brockton, Fall River, and Newport.





Block Group average; EPA National Air Toxics Assessment (NATA) index values at or below 1 represent a normal, acceptable risk over a lifetime. Data Source: EJSCREEN 2019. NBEP dataset summarizing reporting for the Narragansett Bay region is available for download on our GIS Data Hub (EJ Priority Areas, 2019, NBEP 2021).

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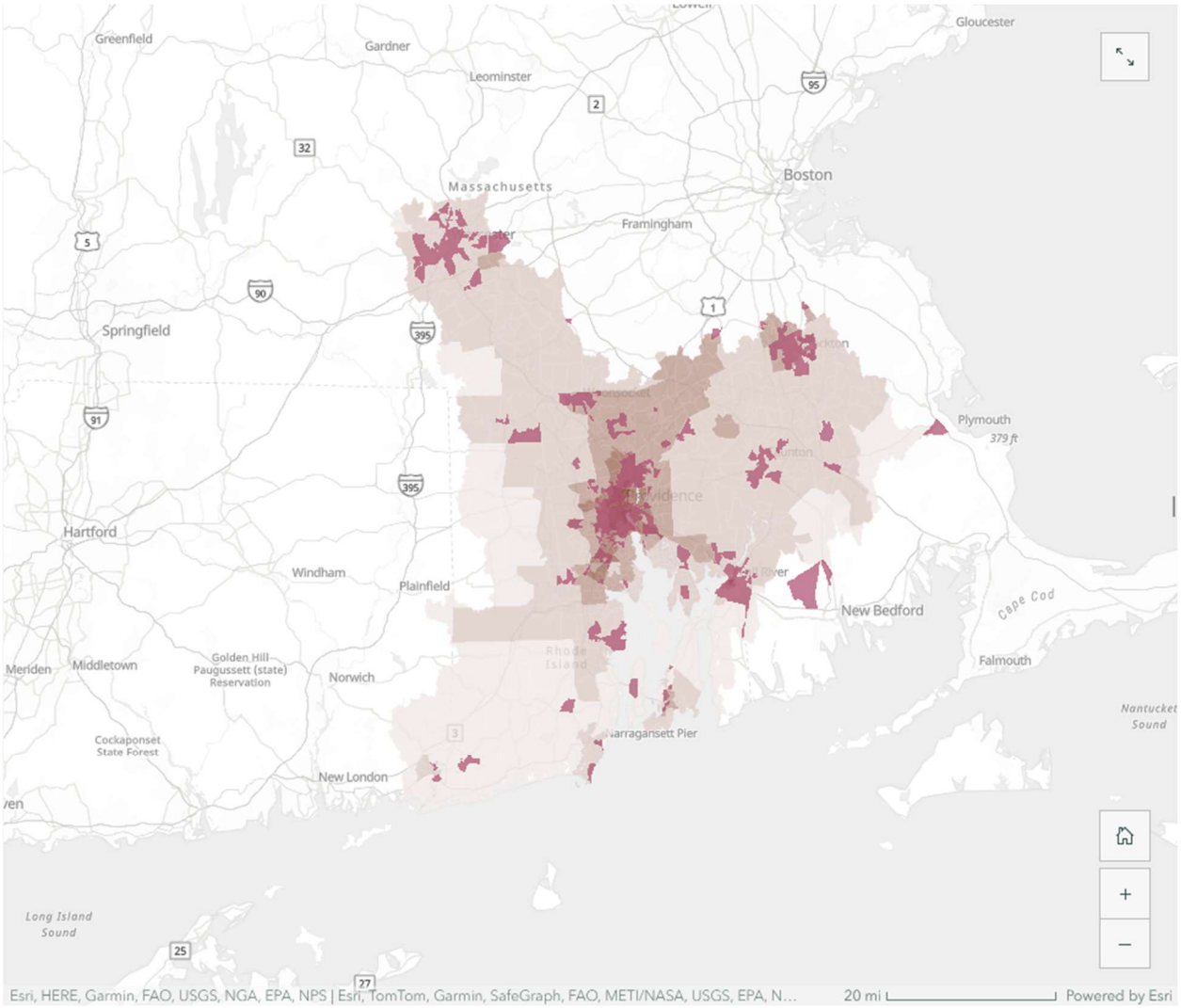
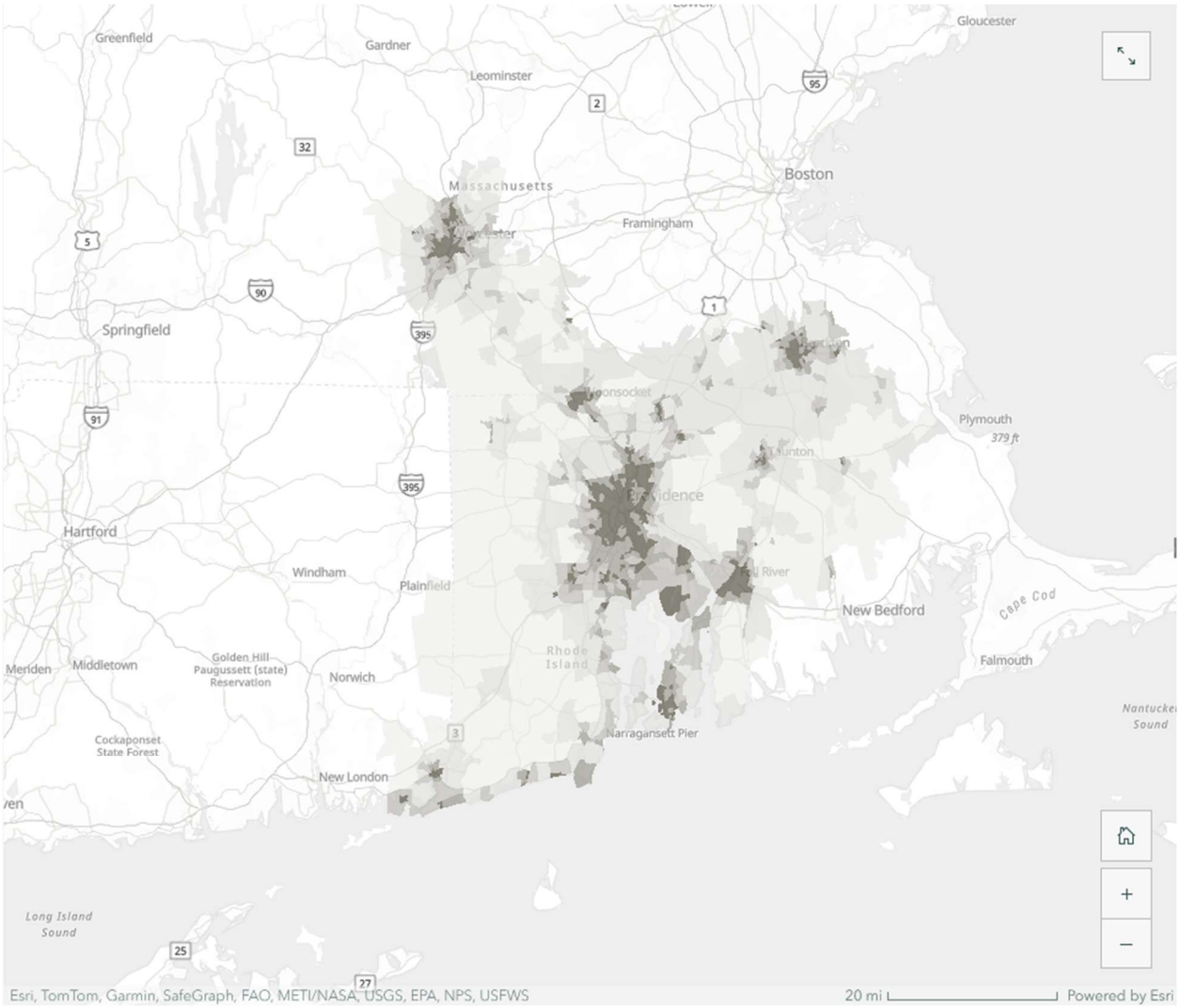
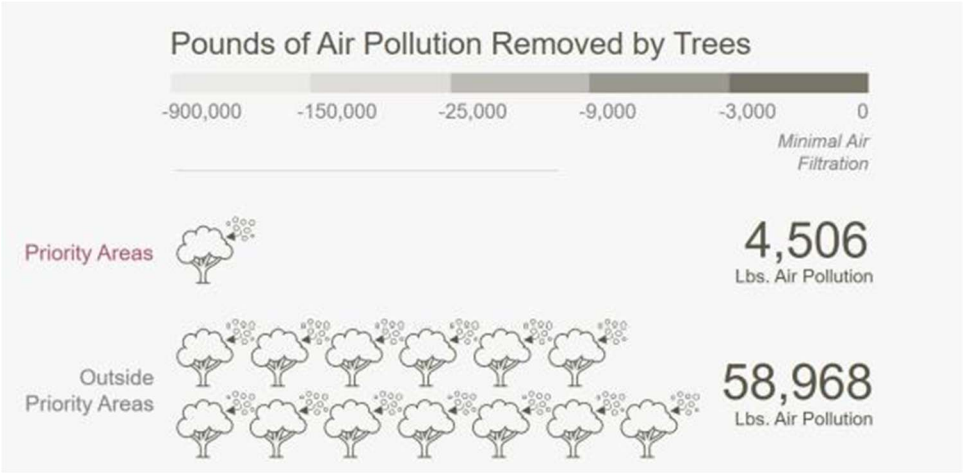


Regionally, trees filter and remove over 61 million pounds of air pollutants each year—but areas with less trees receive fewer benefits.

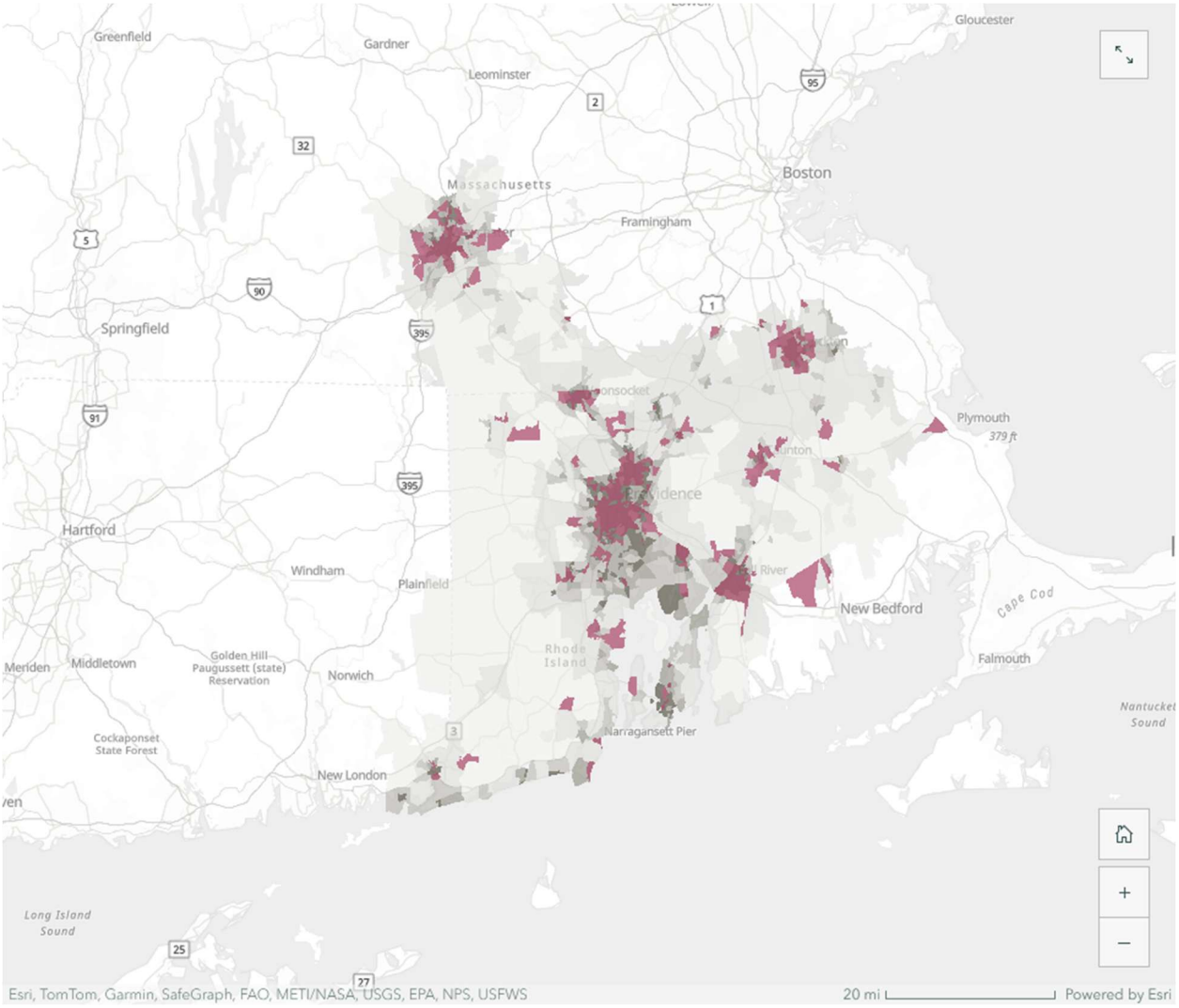
Trees absorb harmful airborne pollutants—both particulate and gaseous—that can cause asthma, respiratory and eye irritation, and chronic illness over long-term exposure. Notice that many of the areas most impacted by air toxics (see previous map) also have the least protection from air pollution. That is, areas with greater pollution are also, largely, areas with fewer trees (darker browns).





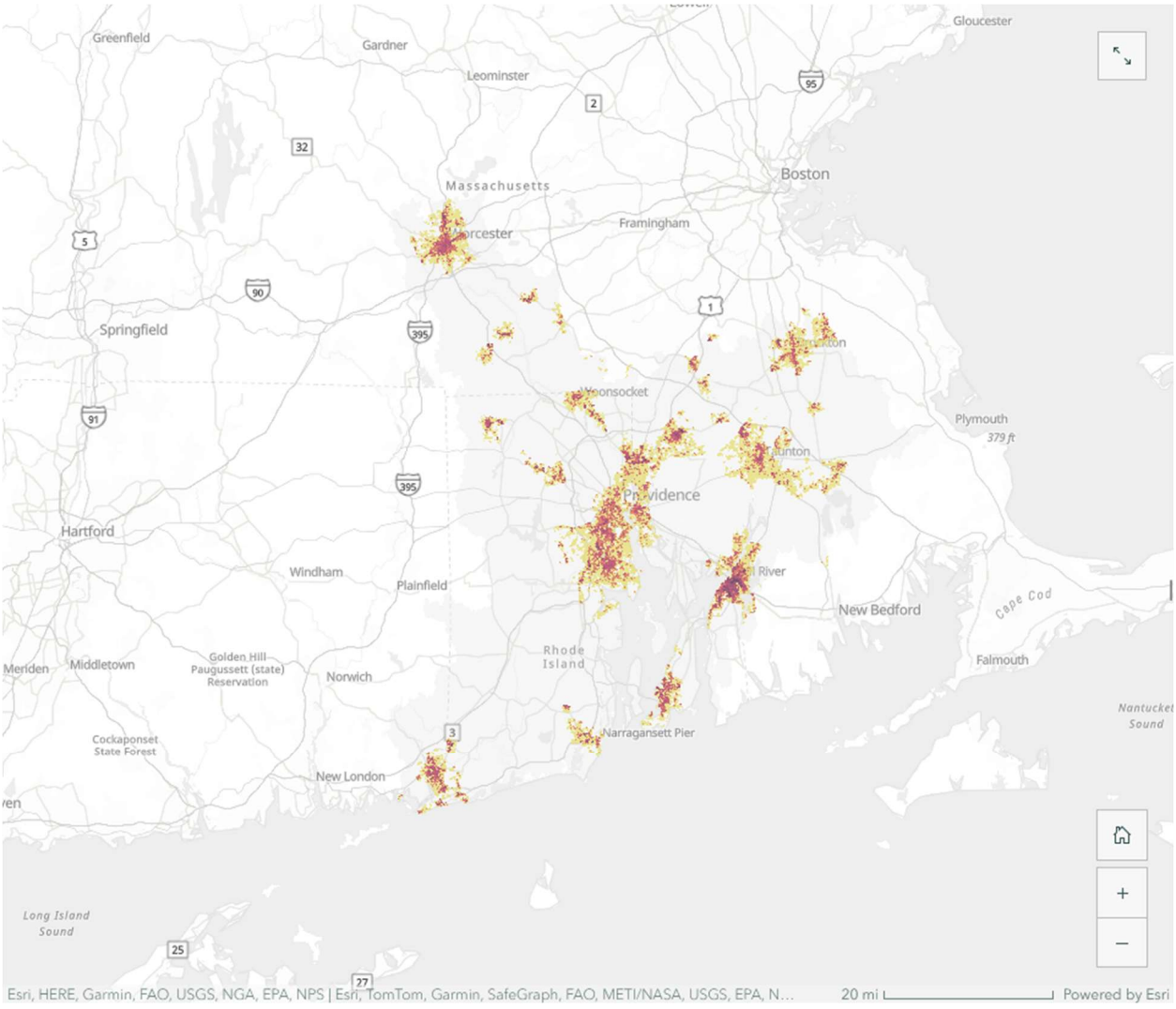
Average annual pounds of air pollution removal (CO, NO2, O3, PM2.5, PM10, SO) by the tree canopy per block group in priority areas as compared to surrounding areas. Data Source: iTree Landscape v4.3.1.

View Priority Areas on Map



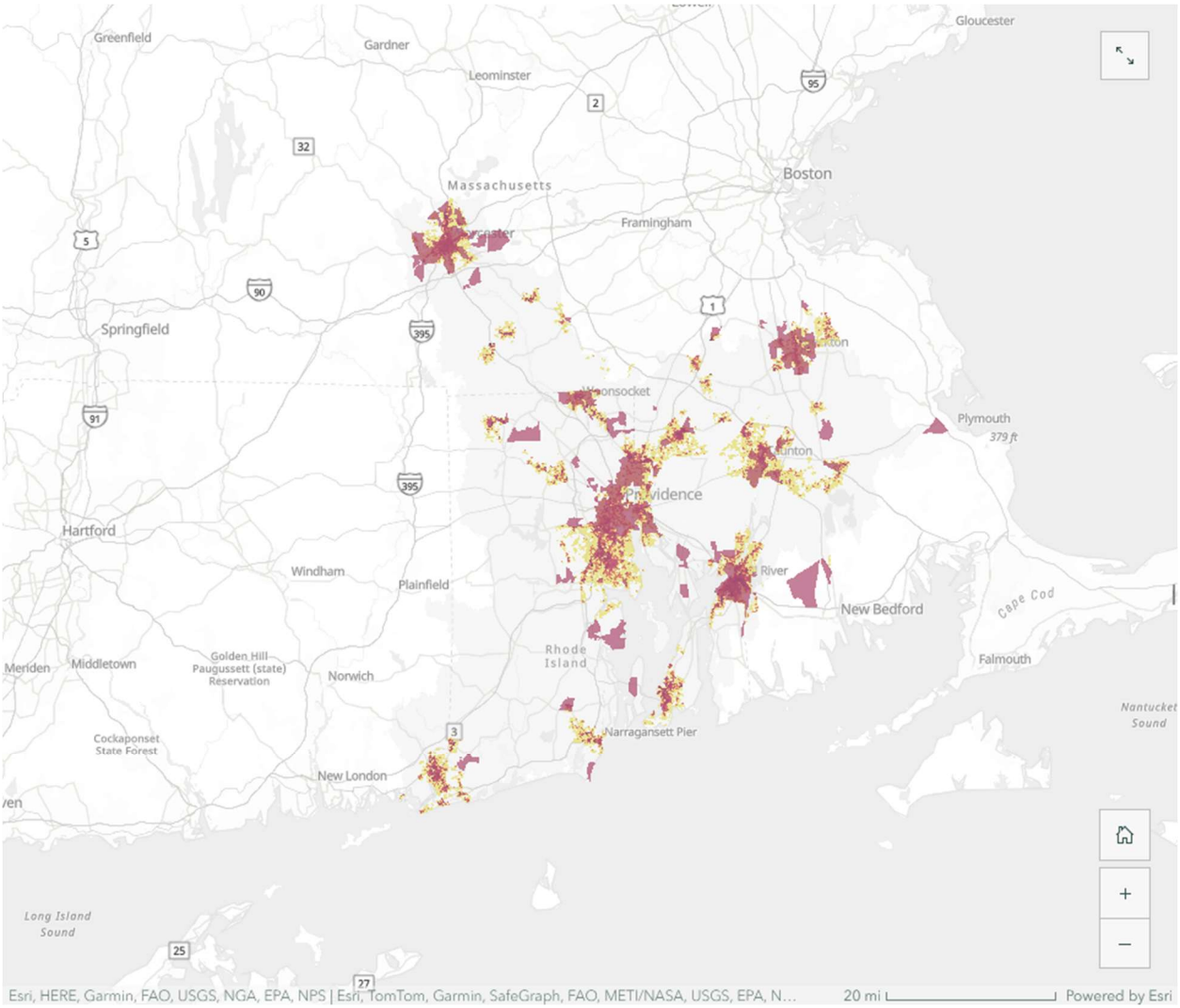
Each city's landscape of buildings, streets, and parking lots creates islands of urban heat that can become dangerously hot in the summer.

We all know the feeling of standing on the pavement in full sun in the summer—it feels like an oven. Dark, paved surfaces absorb and hold heat efficiently, prolonging the sun's radiation even after sunset. Unchecked by the cooling power of trees and city plantings, some areas can heat up dangerously. Extreme heat is the most deadly of our natural hazards, even though heat-related deaths and illnesses are preventable with access to shade, good hydration, and proper air-conditioning. Priority areas have less shade, and in turn, more heat-related problems that other areas. Note that this map shows relative heat severity for just the cities of the region.



Forests and natural areas, street trees, and city plantings provide cooling that reduces ambient temperatures. Paved surfaces and dark rooftops absorb and hold heat efficiently, prolonging the sun's radiation even after sunset and creating islands of heat that can be dangerous to public health. Map Data Source: The Trust for Public Land Urban Heat Island layer derived for every pixel of every US city from Landsat 8 imagery band 10 (ground-level thermal sensor) from the summers of 2018 and 2019.

View Priority Areas on Map



"The need for change bulldozed a road down the centre of my mind."—Maya Angelou

This is our shared legacy.

Our journey through these maps makes visible the people and places left burdened by our collective history. This is a history that has traversed the prosperity of Tribal Nations to European colonization; the Industrial Revolution and environmental degradation; redlining and other exclusionary historical policies and practices; and suburbanization, White flight, sprawl, and gentrification. *This history has been etched into the land and water, and it continues to impact us all.* It leaves deep and persistent inequities that will endure without thoughtful and intentional change.

Learn More: Climate Safe Neighborhoods, *Groundwork Rhode Island*; Mapping Inequality, *Nelson et al. 2021*; Mapping the Black Homeownership Gap, *Urban Institute*; Nine Charts about Wealth Inequality in America, *Urban Institute*; Toxic Wastes and Race at Twenty, *United Church of Christ*; Loving Cities Index, Providence, RI, *Schott Foundation*; Housing Policy & Gentrification in Providence, *Jerzyk 2009*; Environmental Justice, *Mohai et al. 2009*; Rethinking Environmental Racism, *Pulido 2000*

The heritage of the land and water is millennia-old.

The Narragansett Bay region is the home of the Mashantucket Pequot Tribal Nation, the Massachusett Tribe, the Mohegan Tribe, the Narragansett Tribe, the Niantic Tribe, the Nipmuc Nation, and the Wampanoag Tribe. The landscape and waters have been their homeland for thousands of years. Their story of survival is virtually invisible in this exploration of maps and data. What is visible in that absence is a legacy of displacement, genocide, disease, and land theft. Environmental justice means honoring the heritage of the land and water, championing indigenous peoples, and valuing traditional knowledge systems.

Learn More: The Mashantucket Pequot Tribal Nation, The Massachusett Tribe, The Mohegan Tribe, The Narragansett Tribe, The Nipmuc Nation, The Wampanoag Tribe

Taking Steps Together

There is a common thread visible in map after map. We can weave this thread into a story of change.

This exploration of available data reveals the frontlines of needed environmental change. The data spotlight **numerous opportunities to focus collective effort and resources on over-burdened areas and under-resourced communities** such that all individuals in all communities achieve their fullest potential.

The Government Alliance on Race & Equity highlights three areas where we can begin to address systemic inequities and move the needle of change: (1) make a collective commitment to achieving racial equity and environmental justice, (2) leverage the power of our own institutions, and (3) work in together in partnership (GARE 2015).

The Narragansett Bay Estuary Program has been bringing together a growing coalition of environmental and community groups, scientists, government, and local champions from across Massachusetts, Rhode Island, and Connecticut. This partnership is working together to refresh a 10-year plan for the region, called Vision2032. It will launch in 2022.

Vision2032 will comprise 30-50 targeted Action Plans that tackle different facets of work on water, wildlife and habitat, quality of life, and the partnership's ability to be a force for change. **Each Action Plan will be scrutinized for racial equity, sustainability, and climate resilience to balance who is impacted, where resources are needed, and who will benefit most.**

Here's what we are currently working on to elevate our focus on racial equity and environmental justice in Vision2032:

- We have hired a consultant to conduct a **partnership-wide assessment** to identify recommendations for advancing justice, equity, diversity, and inclusion in Vision2032.
- We are developing **data-driven planning tools** to support a systematic approach for evaluating each Vision2032 Action Plan through the lenses of racial equity, sustainability, and climate resilience.

- **Take our Survey!** If you live, work or play in the Narragansett Bay region, you can help shape the next decade of planning for a healthier Narragansett Bay region by taking a quick survey. We look forward to getting your input!

It will take collective action, *and your help,* to make Vision2032 a vehicle for change. Please visit vision2032.org to find out how you can get more involved in developing this plan.

> *"To bring about change, you must not be afraid to take the first step. We will fail when we fail to try."* – Rosa Park

Methods

Overview: Development of a priority areas dataset for the Narragansett Bay region was informed by a variety of similar approaches used by states, organizations, and researchers. Ultimately, we selected U.S. Environmental Protection Agency (EPA) EJSCREEN, a nationally-recognized dataset that compiles key demographic factors from U.S. Census American Community Survey 5-year estimates at the block group scale. Census block groups are the smallest size Census areas for which demographic data are available. From EJSCREEN technical documentation: "Nationwide direct measures of health status are not available for all block groups or even tracts. Demographics, however, are available for every block group, and are correlated with health status and other susceptibility factors, making them useful screening-level indicators of potential susceptibility at the local level" (EPA 2019).

Demographic factors have been used widely by researchers to identify "social vulnerability" and to consistently predict health outcomes, susceptibility to environmental risks, and/or underserved portions of the population (Cutter et al. 2003, EPA 2019). EJSCREEN uses demographics to identify geographic areas where individuals may be more susceptible to environmental hazards when they are already in poor health, have reduced access to care, or lack resources or language skills or education that would help them avoid exposures or obtain treatment.

Based on Executive Order 12898, EJSCREEN identifies low-income and non- White and/or Latinx populations as "core factors." It also includes four additional commonly-used factors including populations with higher proportions of linguistic isolation, education level below high school, very young persons, and senior citizens. The environmental justice priority areas dataset used in this StoryMap was constructed from the following four variables based on EJSCREEN and a review of commonly used demographic variables in geospatial environmental justice research (e.g., Hill et al. 2018, Sanchez et al. 2014, Wolch et al. 2005, Montgomery et al. 2015, Hughey et al. 2016):

Race/ethnicity: Percent non-White and/or Latinx people

Income: Percent with incomes <2x the poverty level

Linguistic Isolation: Percent living in a household in which all members aged 14 years and older speak a non-English language and also have difficulty with English

Education: Percent with less than a high school education

Data Processing: The national EJSCREEN (2019) GIS shapefile was downloaded here. Block groups intersecting with Narragansett Bay Estuary Program study areas were exported. Quantiles specific to the region were run at a range of cutoffs and are included in the table below for reference:

PERCENTILE	PERCENT NON-WHITE AND/OR LATINX	PERCENT LOW INCOME	PERCENT LIMITED ENGLISH	PERCENT LESS THAN HIGH SCHOOL
25th	6.0%	10.9%	0.0%	3.9%
50th	14.7%	19.8%	1.5%	8.6%
60th	19.5%	25.1%	3.2%	11.2%
70th	27.1%	33.3%	5.6%	14.9%
75th	33.1%	37.8%	7.3%	17.6%
80th	**40.2%**	**43.8%**	**9.3%**	**20.4%**
90th	65.2%	57.1%	17.5%	28.5%

For each of the four factors, an 80th percentile cutoff was applied. This means that any block group with a population greater than or equal to the 80th percentile for at least ONE of the four factors qualified as a priority area. We view the 80th percentile as a conservative cutoff that offers a high probability that individuals within that area experience a greater lack of resources and/or conditions indicative of greater susceptibility to environmental hazards. The priority index (range: 0-4) indicates the number of qualifying factors for each block group.

Due to uncertainty in demographic data at the block group level, EJSCREEN advises against use of estimates for a single block group, and recommends summarizing trends across larger areas of several block groups. Following this guidance, we summarized analytical results of environmental data using all priority areas as a single zone or

averaged across priority areas rather than evaluating the data on a per block group basis. A range of geoprocessing tools were used to generate the summary statistics provided in the graphics paired with each map.

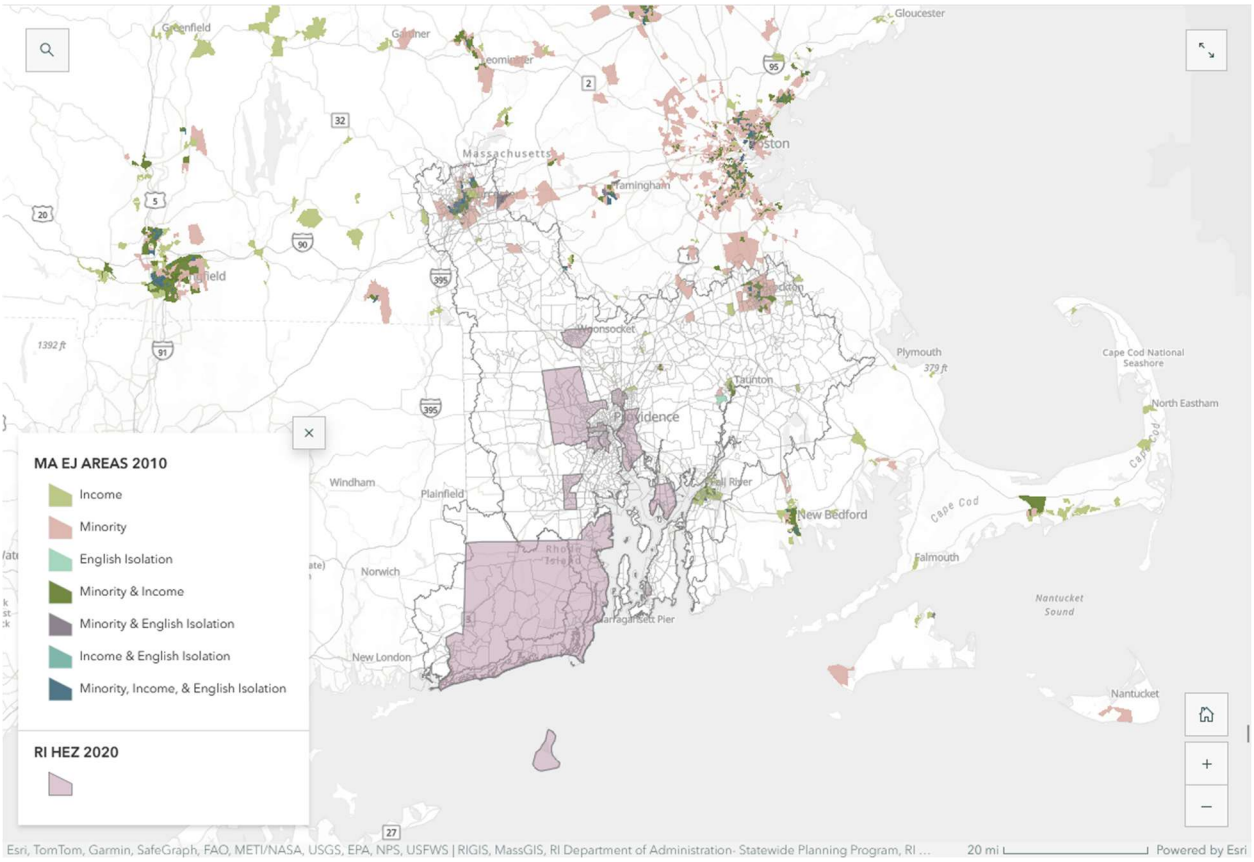
Reference Data: Use the buttons below to view two state-level spatial datasets from Rhode Island and Massachusetts, historical redlining maps from Mapping Inequality, and a tribal lands layer.

Rhode Island's Health Equity Zones (HEZ) were completely defined by stakeholders with a goal of identifying areas of the state that are economically disadvantaged and have documented health risks. A HEZ may be as small as several city blocks, or as large as a county. (RIDOH 2020).

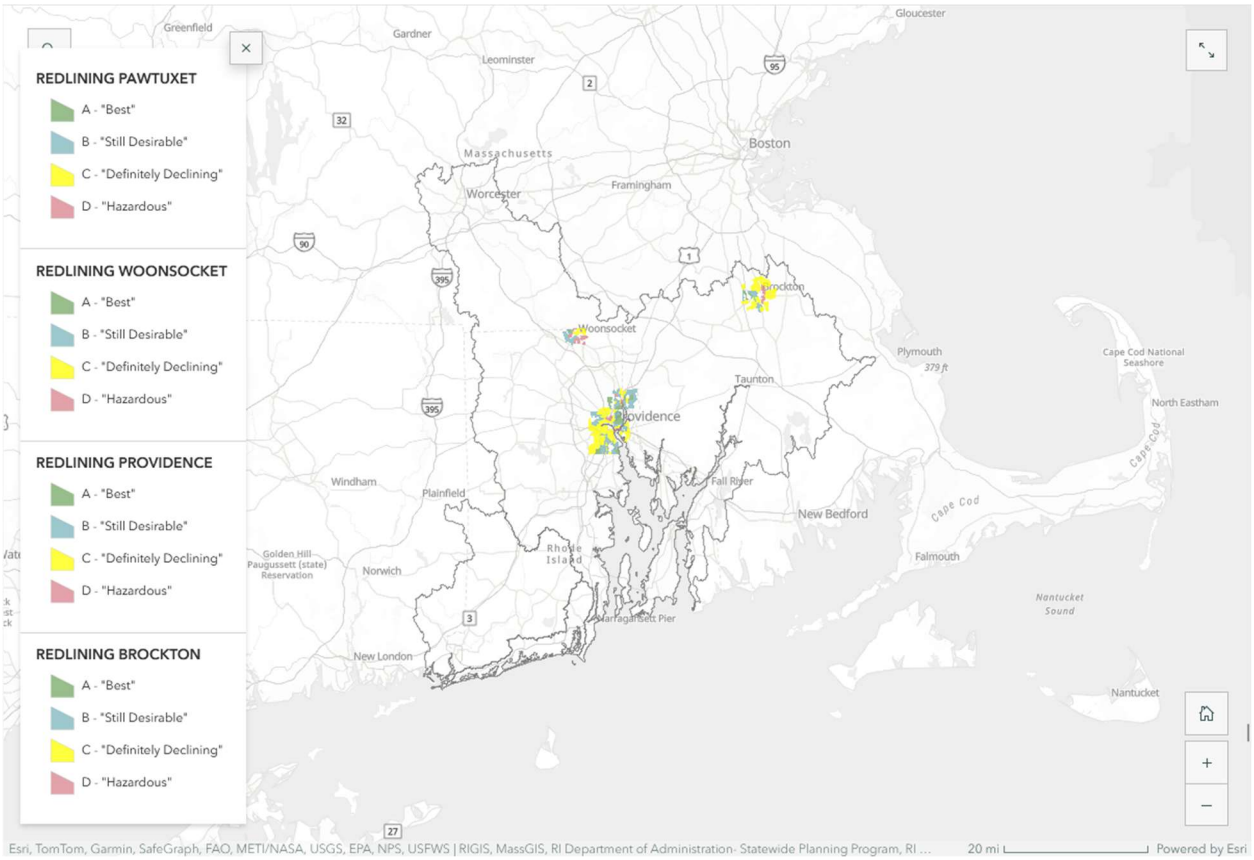
In Massachusetts, Environmental Justice Communities were identified using Census data, if any of the following were true: (1) a block group whose annual median household income is equal to or less than 65% of the statewide median ($62,072 in 2010); (2) 25% or more of the residents identify as a race other than white; or (3) 25% or more of households have no one over the age of 14 who speaks English only or very well (English Isolation) (MassGIS 2012).

Mapping Inequality is a project compiling redlining maps for U.S. cities (Nelson et al. 2021). Tribal Lands boundaries were digitized as a rough reference point by NBEP, last accessed 02-2021. Please note that tribal land boundaries are not perfect—they are solely a reference point to help us understand our history and not the official or legal boundaries of any Indigenous nations.

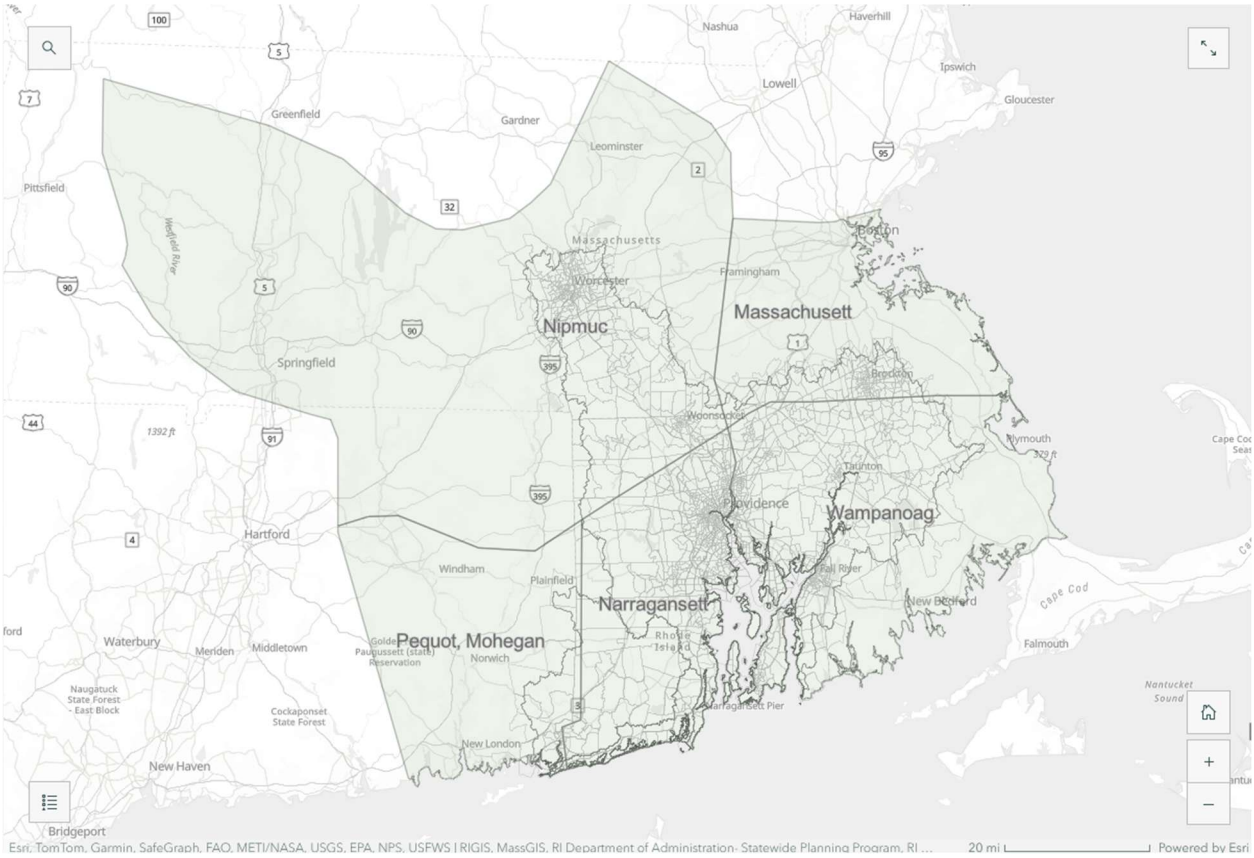
RI Health Equity Zones / MA EJ Areas



Mapping Inequality Redlining Layers



Narragansett Bay Region Tribal Lands



References:

Cutter, S. L., Boruff, B. J., & Shirley, W. L. (2003). Social vulnerability to environmental hazards. *Social science quarterly*, *84(2)*, 242-261.

Hill, D. T., Collins, M. B., & Vidon, E. S. (2018). The environment and environmental justice: Linking the biophysical and the social using watershed boundaries. Applied Geography, 95, 54-60.

Hughey, S. M., Walsemann, K. M., Child, S., Powers, A., Reed, J. A., & Kaczynski, A. T. (2016). Using an environmental justice approach to examine the relationships between park availability and quality indicators, neighborhood disadvantage, and racial/ethnic composition. Landscape and Urban Planning, 148, 159-169.

Montgomery, M. C., Chakraborty, J., Grineski, S. E., & Collins, T. W. (2015). An environmental justice assessment of public beach access in Miami, Florida. Applied Geography, 62, 147-156.

Sanchez, G. M., Nejadhashemi, A. P., Zhang, Z., Woznicki, S. A., Habron, G., Marquart-Pyatt, S., & Shortridge, A. (2014). Development of a socio-ecological environmental justice model for watershed-based management. Journal of hydrology, 518, 162-177.

U.S. Environmental Protection Agency (EPA), 2019. EJSCREEN Technical Documentation.

Wolch, J., Wilson, J. P., & Fehrenbach, J. (2005). Parks and park funding in Los Angeles: An equity-mapping analysis. Urban geography, 26(1), 4-35.

Recommendations

These environmental justice "priority areas" can be used for general screening and prioritization. Planning activities can then be supported by a close assessment of the data and community input.

These areas may not capture your community perfectly, but they are a valuable place to start. There is no "one size fits all" method for identifying environmental justice areas. It is important to view these as persistent "core" areas where individuals are more likely to lack the resources, access to medical care, language skills, and educational support to protect themselves from environmental hazards. We view the 80th percentile as a conservative population cutoff. The core areas captured at this cutoff remain stable at different cutoffs; however, we emphasize that the "edges" of what includes or excludes a priority area must be more fluid than a single cutoff can depict.

Areas that do not meet the criteria for "priority areas" should not automatically be disqualified from receiving needed services, if stakeholder input, other data, or local expertise can make a case for inclusion. Similarly, areas that qualify as a "priority area" should be groundtruthed to ensure that services intended to advance racial equity are connected appropriately.

As such, these priority areas can be used as a screening dataset for general planning in our region; however, we advise that initial screening be supported by additional data from Census and other sources, stakeholder input, and/or ground-truthing by local representatives. This reference map provides demographic data for each block group to assist users in (1) summarizing supporting data across multiple block groups as recommended, and (2) using the data to support prioritization relative to populations in your own communities (e.g., your town).

If you live or work in an area that you feel should be represented differently on this map, we are interested to learn more. Ultimately, our goal is a create a map that better represents our region and we recognize the limitations of Census data to achieve that. Please get in touch using the contact information provided in the Resources section below.

Action-Oriented Resources

NBEP Resources

- Get Involved in Vision2032: **Visit vision2032.org**
- Shape the next decade of planning with your input! - **Take Our Survey!**
- Start Planning: **Environmental Justice Planning & Mapping Tool**
- GIS Layer Download: **Environmental Justice Priority Areas (NBEP 2021)**

Additional Resources

- Advancing Racial Equity and Transforming Government - *Government Alliance on Race & Equity*
- Breaking Bad Philanthropic Habits - *Justice Funders*
- Climate Change and Your Health: A Guide for Rhode Islanders (English) (Spanish) - *Rhode Island Department of Health*
- Environmental Justice Screening and Mapping Tool - EJSCREEN - *U.S. Environmental Protection Agency*
- Land Reparations & Indigenous Solidarity Toolkit - *Resource Generation*
- Mapping Inequality (Redlining in New Deal America) - *Nelson et al. 2021*
- Native Lands - *Native Land Digital*
- Racial Equity Toolkit - *Government Alliance on Race & Equity*
- STORMTOOLS - *Coastal Resources Management Council*
- Tree Equity Score Analyzer - *American Forests*

Contact Us

We're interested in hearing from you! To provide feedback about this product or to learn more about the planning tools we are developing based on these data, please reach out to mailto:julia.twichell@nbep.org.

Credits

This StoryMap was co-authored by Katherine Altamirano and Julia Twichell of the Narragansett Bay Estuary Program. Data analysis, research, cartography, concept development, and design work by Katherine Altamirano. Narrative writing, concept development, methods, design work, data curation, and supervision by Julia Twichell.

Learn more about the Narragansett Bay Estuary Program at nbep.org. Explore more of our Narragansett Bay region data and StoryMaps at the NBEP GIS Data Hub. Photos by Ayla Fox for NBEP and NBEP.

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